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December 19, 2019

Contains Confidential Business Information

IDEM Air Permits Administration
Attn: Incoming Application
100 North Senate Avenue
MC 61-53, Room 1003
Indianapolis, IN 46204-2251

Re: Cook Inc. – Ellettsville North Facility
FESOP No. 105-47044-00030
Application for Administrative Amendment

Dear Sir or Madam,

Enclosed please find an application for an administrative amendment to FESOP No. 105-40744-00030, which was issued to Cook Inc.'s Ellettsville North facility, located at 6300 North Matthews Drive, Ellettsville, IN.

Description of Proposed Change

As discussed more fully in the attached application materials, Cook Incorporated is undertaking a project to voluntarily reduce ethylene oxide (EtO) emissions to extremely low levels at its Ellettsville North facility (the "Voluntary Emissions Reduction Program"). The intent of the Voluntary Emissions Reduction Program is to minimize fugitive emissions of EtO and to further reduce EtO emissions from the facility's sterilization chambers, which are already controlled by a wet acid scrubber.

Cook met with IDEM personnel on October 16, 2019, to review the project plans and discuss the installation of an additional 18 dry bed reactors that have been installed at the facility, resulting in a total of 25 dry bed reactors in operation at Ellettsville North. Pursuant to those discussion, Cook now seeks approval from IDEM to incorporate these new voluntary emission controls into its FESOP air permit.

Enclosed with this application, you will find an original and two (2) copies of the following documents:

1. A Permit Application Cover Sheet
2. Relevant Air Permit Application Forms
    a. Basic Source Level Information (GSD-01)
    b. Plant Layout Diagram (GSD-02)
    c. Process Flow Diagram (GSD-03)
    d. Stack/Vent Information (GSD-04)
    e. Control Equipment Summary (CE-01)
    f. Air Permit Application – Forms Checklist
3. Attachment A – Administrative Amendment Narrative
4. Attachments B – Proposed Permit Language
5. Attachment C – Revised Process Flow Diagram **(Confidential)**
6. Attachment D – Representative Design Plans **(Confidential)**
7. Attachment E – Safe Cell II DR490 Specification Sheets

Please note that **Attachments C and D** are considered **Confidential Business Information** by Cook, and must be protected from disclosure under State law pursuant to 326 IAC 17.1-4-1 and I.C. 5-14-3. Cook's justification for confidential treatment is set forth below.

Justifications for Designations as CBI Under State Law

Cook requests that IDEM treat the enclosed CBI as confidential because the information is a trade secret protected from public disclosure pursuant to I.C. 5-14-3-4(b)(4).

1. *Narrative statement that the information is a "Trade Secret."*

A "trade secret" is information that "(1) derives independent economic value, actual or potential, from not being generally known to, and being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use; and (2) is the subject of efforts that are reasonable under the circumstances to maintain its secrecy." I.C. § 24-2-3-2. The enclosed CBI contains confidential information related to technical processes, operational procedures, and other proprietary and confidential information of a competitive and commercial nature. This information has substantial economic value to Cook and its competitors. Moreover, the information is kept

confidential by Cook. Disclosure of this information would place Cook at a competitive disadvantage.

2. *Previous confidentiality determination.*

This information has not been previously subject to a confidentiality determination. However, similar materials have been submitted in prior IDEM air permit applications, also pursuant to a confidentiality request from Cook.

3. *Time the material is to kept confidential.*

Cook requests that IDEM maintain the confidentiality of this information permanently or as long as allowed under applicable law.

If you have any questions regarding this administrative amendment application, please contact me by email at wgardner@taftlaw.com or by phone at 317-713-3562.

Sincerely,

[redacted]

R. William Gardner

Enclosures

cc: Matthew Stuckey, IDEM

26387570.1

AIR PERMIT APPLICATION COVER SHEET

State Form 50639 (R4 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of this cover sheet is to obtain the core information needed to process the air permit application. This cover sheet is required for all air permit applications submitted to IDEM, OAQ. Place this cover sheet on top of all subsequent forms and attachments that encompass your air permit application packet.
- Submit the completed air permit application packet, including all forms and attachments, to **IDEM Air Permits Administration** using the address in the upper right hand corner of this page.
- IDEM will send a bill to collect the filing fee and any other applicable fees.
- Detailed instructions for this form are available on the Air Permit Application Forms website.

FOR OFFICE USE ONLY
PERMIT NUMBER:
____ _____ – _____ – _____
DATE APPLICATION WAS RECEIVED:

1. Tax ID Number: 35-1413874

PART A: Purpose of Application

Part A identifies the purpose of this air permit application. For the purposes of this form, the term "source" refers to the plant site as a whole and NOT to individual emissions units.

2. Source / Company Name: Cook Incorporated | **3. Plant ID:** 105 – 00030

4. Billing Address: 6300 North Matthews Drive

City: Ellettsville | **State:** IN | **ZIP Code:** 47429 –

5. Permit Level: ☐ Exemption ☐ Registration ☐ SSOA ☐ MSOP ☒ FESOP ☐ TVOP ☐ PBR

6. Application Summary: *Check all that apply. Multiple permit numbers may be assigned as needed based on the choices selected below.*

☐ Initial Permit
☐ Renewal of Operating Permit
☐ Asphalt General Permit
☐ Review Request
☐ Revocation of Operating Permit
☐ Alternate Emission Factor Request
☐ Interim Approval
☐ Relocation of Portable Source
☐ Acid Deposition (Phase II)
☐ Site Closure
☐ Emission Reduction Credit Registry

☐ Transition (between permit levels) *From:* *To:*

☒ Administrative Amendment:
☐ *Company Name Change*
☐ *Change of Responsible Official*
☐ *Correction to Non-Technical Information*
☐ *Notice Only Change*
☒ *Other (specify):* Voluntary Installation of Additional Emissions Control Equipment

☐ Modification:
☐ *New Emission Unit or Control Device*
☐ *Modified Emission Unit or Control Device*
☐ *New Applicable Permit Requirement*
☐ *Change to Applicability of a Permit Requirement*
☐ *Prevention of Significant Deterioration*
☐ *Emission Offset*
☐ *MACT Preconstruction Review*
☐ *Minor Source Modification*
☐ *Significant Source Modification*
☐ *Minor Permit Modification*
☐ *Significant Permit Modification*
☐ *Other (specify):*

7. Is this an application for an initial construction and/or operating permit for a **"Greenfield" Source**? ☐ Yes ☒ No

8. Is this an application for construction of a new emissions unit at an **Existing Source**? ☐ Yes ☒ No

Continued on Next Page

PART B: Pre-Application Meeting

Part B specifies whether a meeting was held or is being requested to discuss the permit application.

9. Was a meeting held between the company and IDEM prior to submitting this application to discuss the details of the project?

☐ No ☒ Yes: *Date:* 10/16/2019

10. Would you like to schedule a meeting with IDEM management and your permit writer to discuss the details of this project?

☒ No ☐ Yes: *Proposed Date for Meeting:*

PART C: Confidential Business Information

Part C identifies permit applications that require special care to ensure that confidential business information is kept separate from the public file.

Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in the Indiana Administrative Code (IAC). To ensure that your information remains confidential, refer to the IDEM, OAQ information regarding submittal of confidential business information. For more information on confidentiality for certain types of business information, please review IDEM's Nonrule Policy Document Air-031-NPD regarding Emission Data.

11. Is any of the information contained within this application being claimed as **Confidential Business Information**?

☐ No ☒ Yes

PART D: Certification Of Truth, Accuracy, and Completeness

Part D is the official certification that the information contained within the air permit application packet is truthful, accurate, and complete. Any air permit application packet that we receive without a signed certification will be deemed incomplete and may result in denial of the permit.

For a Part 70 Operating Permit (TVOP) or a Source Specific Operating Agreement (SSOA), a "responsible official" as defined in 326 IAC 2-7-1(34) must certify the air permit application. For all other applicants, this person is an "authorized Individual" as defined in 326 IAC 2-1.1-1(1).

☒ *I certify under penalty of law that, based on information and belief formed after reasonable inquiry, the statements and information contained in this application are true, accurate, and complete.*

Derek Voskuil
Name *(typed)*

[redacted]
Signature

General Manager & Vice President
Title

18DEC2019
Date

OAQ GENERAL SOURCE DATA APPLICATION
GSD-01: Basic Source Level Information

State Form 50640 (R5 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of GSD-01 is to provide essential information about the entire source of air pollutant emissions. GSD-01 is a required form.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for public inspection.

PART A: Source / Company Location Information

1. **Source / Company Name**: Cook Incorporated
2. **Plant ID**: 105 – 00030
3. **Location Address**: 6300 North Matthews Drive
   - **City**: Ellettsville
   - **State**: IN
   - **ZIP Code**: 47429 –
4. **County Name**:
5. **Township Name**:
6. **Geographic Coordinates**:
   - **Latitude**: 39º 14' 38"
   - **Longitude**: 86º 37' 05"
7. **Universal Transferal Mercadum Coordinates** *(if known)*:
   - **Zone**:
   - **Horizontal**:
   - **Vertical**:
8. **Adjacent States**: Is the source located within 50 miles of an adjacent state?

   ☒ No ☐ Yes – *Indicate Adjacent State(s):* ☐ Illinois (IL) ☐ Michigan (MI) ☐ Ohio (OH) ☐ Kentucky (KY)
9. **Attainment Area Designation**: Is the source located within a non-attainment area for any of the criteria air pollutants?

   ☒ No ☐ Yes – *Indicate Nonattainment Pollutant(s):* ☐ CO ☐ Pb ☐ NO_x ☐ O_3 ☐ PM ☐ PM_{10} ☐ $PM_{2.5}$ ☐ SO_2
10. **Portable / Stationary**: Is this a portable or stationary source? ☐ Portable ☒ Stationary

PART B: Source Summary

11. **Company Internet Address** *(optional)*:
12. **Company Name History**: Has this source operated under any other name(s)?

    ☒ No ☐ Yes – *Provide information regarding past company names in Part I, Company Name History.*
13. **Portable Source Location History**: Will the location of the portable source be changing in the near future?

    ☒ Not Applicable ☐ No ☐ Yes – *Complete Part J, Portable Source Location History, and Part K, Request to Change Location of Portable Source.*
14. **Existing Approvals**: Have any exemptions, registrations, or permits been issued to this source?

    ☐ No ☒ Yes – *List these permits and their corresponding emissions units in Part M, Existing Approvals.*
15. **Unpermitted Emissions Units**: Does this source have any unpermitted emissions units?

    ☒ No ☐ Yes – *List all unpermitted emissions units in Part N, Unpermitted Emissions Units.*
16. **New Source Review**: Is this source proposing to construct or modify any emissions units?

    ☒ No ☐ Yes – *List all proposed new construction in Part O, New or Modified Emissions Units.*
17. **Risk Management Plan**: Has this source submitted a Risk Management Plan?

    ☒ Not Required ☐ No ☐ Yes → Date submitted: EPA Facility Identifier: – –

Continued on Next Page

PART C: Source Contact Information

IDEM will send the original, signed permit decision to the person identified in this section. This person MUST be an employee of the permitted source.

18. Name of Source Contact Person: Shawn Adams

19. Title *(optional)*:

20. Mailing Address: Cook Incorporated, P.O. Box 489

City: Bloomington	**State**: IN	**ZIP Code**: 47402 – 0489

21. Electronic Mail Address *(optional)*: shawn.adams@cookmedical.com

22. Telephone Number: (812) 339 – 2235	**23. Facsimile Number** *(optional)*: ( ) –

PART D: Authorized Individual/Responsible Official Information

IDEM will send a copy of the permit decision to the person indicated in this section, if the Authorized Individual or Responsible Official is different from the Source Contact specified in Part C.

24. Name of Authorized Individual or Responsible Official: Derek Voskuil

25. Title: General Manager & Vice President

26. Mailing Address: Cook Incorporated, P.O. Box 489

City: Bloomington	**State**: IN	**ZIP Code**: 47402 – 0489

27. Telephone Number: (812) 339 – 2235	**28. Facsimile Number** *(optional)*: ( ) –

29. Request to Change the Authorized Individual or Responsible Official: Is the source officially requesting to change the person designated as the Authorized Individual or Responsible Official in the official documents issued by IDEM, OAQ? *The permit may list the title of the Authorized Individual or Responsible Official in lieu of a specific name.*

☒ No ☐ Yes – ***Change Responsible Official to:*** Derek Voskuil, General Manager & Vice President

PART E: Owner Information

30. Company Name of Owner: Cook Incorporated

31. Name of Owner Contact Person: Derek Voskuil

32. Mailing Address: P.O. Box 489

City: Bloomington	**State**: IN	**ZIP Code**: 47402 – 0489

33. Telephone Number: (812) 339 – 2235	**34. Facsimile Number** *(optional)*: ( ) –

34. Operator: Does the "Owner" company also operate the source to which this application applies?

☐ No – *Proceed to Part F below.*	☒ Yes – *Enter "SAME AS OWNER" on line 35 and proceed to Part G below.*

PART F: Operator Information

35. Company Name of Operator: SAME AS OWNER

36. Name of Operator Contact Person:

37. Mailing Address:

City:	**State**:	**ZIP Code**: –

38. Telephone Number: ( ) –	**39. Facsimile Number** *(optional)*: ( ) –

Continued on Next Page

PART G: Agent Information

40. Company Name of Agent: Atlantic Design Engineers, Inc.

41. Type of Agent: ☒ Environmental Consultant ☐ Attorney ☐ Other (specify):

42. Name of Agent Contact Person: Simon B. Thomas

43. Mailing Address: P.O. Box 1051

City: Sandwich	**State**: MA	**ZIP Code**: 02563 –

44. Electronic Mail Address *(optional)*: sthomas@atlanticcompanies.com

45. Telephone Number: (508) 888 – 9282	**46. Facsimile Number** *(optional)*: (508) 888 – 5859

47. Request for Follow-up: Does the "Agent" wish to receive a copy of the preliminary findings during the public notice period (if applicable) and a copy of the final determination? ☐ No ☒ Yes

PART H: Local Library Information

48. Date application packet was filed with the local library: N/A

49. Name of Library: Monroe County Library

50. Name of Librarian *(optional)*: Branch Manager - Chris Hosler

51. Mailing Address: 600 West Temperance

City: Ellettsville	**State**: IN	**ZIP Code**: 47429 –

52. Internet Address *(optional)*: www.monroe.lib.in.us

53. Electronic Mail Address *(optional)*: chosler@monroe.lib.in.us

54. Telephone Number: (812) 876 – 1272	**55. Facsimile Number** *(optional)*: ( ) –

PART I: Company Name History *(if applicable)*

Complete this section only if the source has previously operated under a legal name that is different from the name listed above in Section A.

56. Legal Name of Company	**57. Dates of Use**
	to
	to
	to
	to
	to
	to
	to
	to
	to
	to

58. Company Name Change Request: Is the source officially requesting to change the legal name that will be printed on all official documents issued by IDEM, OAQ?

☒ No ☐ Yes – ***Change Company Name to**:*

Continued on Next Page

PART J: Portable Source Location History *(if applicable)*

Complete this section only if the source is portable and the location has changed since the previous permit was issued. The current location of the source should be listed in Section A.

59. Plant ID	60. Location of the Portable Source	61. Dates at this Location
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to
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–		to
–		to
–		to
–		to
–		to

PART K: Request to Change Location of Portable Source *(if applicable)*

Complete this section to request a change of location for a portable source.

62. Current Location:

Address:

City:	**State**:	**ZIP Code**: –

County Name:

63. New Location:

Address:

City:	**State**:	**ZIP Code**: –

County Name:

Continued on Next Page

PART L: Source Process Description

Complete this section to summarize the main processes at the source.

64. Process Description	65. Products	66. SIC Code	67. NAICS Code
Manufacture of Medical Devices	Medical Devices		339112, 339113

PART M: Existing Approvals *(if applicable)*

Complete this section to summarize the approvals issued to the source since issuance of the main operating permit.

68. Permit ID	69. Emissions Unit IDs	70. Expiration Date
40744	FESOP Renewal Issued 8/30/2019	8/30/2029

PART N: Unpermitted Emissions Units *(if applicable)*

Complete this section only if the source has emission units that are not listed in any permit issued by IDEM, OAQ.

71. Emissions Unit ID	72. Type of Emissions Unit	73. Actual Dates		
		Began Construction	Completed Construction	Began Operation

PART O: New or Modified Emissions Units *(if applicable)*

Complete this section only if the source is proposing to add new emission units or modify existing emission units.

74. Emissions Unit ID	75. NEW	76. MOD	77. Type of Emissions Unit	78. Estimated Dates		
				Begin Construction	Complete Construction	Begin Operation

OAQ GENERAL SOURCE DATA APPLICATION
GSD-02: Plant Layout Diagram

State Form 51605 (R3 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of GSD-02 is to provide a diagram of the entire plant site. This form and a Plant Layout diagram are required for all air permit applications. If you do not provide the necessary information, applicable to your source, the application process may be stopped.
- IDEM, OAQ has provided detailed instructions for this form and an example of a basic plant layout diagram on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for public inspection.

Part A: Basic Plant Layout

Part A provides IDEM, OAQ with the appropriate information about all buildings and access-limiting features in and around the plant site. **Please use this table as a checklist.** You must provide scaled drawings, with the actual scale shown. All dimensions and units must be clearly indicated with a brief explanation of what is being shown. Include the following (*All measurements should be given in feet.*):

1.	☒ Building Location and Dimensions				
2.	☒ Property Lines and Access-Limiting Features				
3.	☐ Surrounding Building Location and Dimensions				
4.	☒ Distances to Property Lines and Access-Limiting Features				
5.	☒ UTM Location Coordinates	**6.**	☒ Compass (pointing North)	**7.**	☒ Scale

Part B: Stack Information

Part B provides IDEM, OAQ with the appropriate information about all stacks, roof monitors, control devices, and process vents at the plant site. **Please use this table as a checklist.** You must show the location of all applicable emission points and include all relevant stack and emissions unit identification numbers for each. In addition, you will need to identify each of these emission points under "Stack Identification" on form GSD-04, Stack/Vent Information. Include the following (*All measurements should be in feet.*):

8.	☒ Exhaust Stacks			
9.	☐ Process Vents			
10.	☐ Roof Monitors	☒ *No Roof Monitors*		
11.	☒ Control Devices	☐ *No Control Devices*		
12.	☐ Interior Vents	☒ *No Interior Vents*	☐ Doors and Windows *(for processes vented inside a building)*	

Part C: Roadway Information

Part C provides IDEM, OAQ with the appropriate information about the roadways in and around the plant site. **Please use this table as a checklist.** Include the following (*All measurements should be in feet.*):

13.	☒ Adjacent Roadways	☒ Interior Roadways
14.	☐ Roadway Surface Description (gravel, dirt, paved, etc.)	
15.	☐ Number of Lanes	

Continued on Next Page

Part D: Source Building Information

This table provides detailed information about each building at the plant site that is part of the source. If additional space is needed, you may make a copy of this table. (*All measurements should be given in feet.*)

16. Building ID	17. Building Description	18. Building Dimensions			19. Distance & direction to the nearest property line or access limiting feature (feet & compass coordinate)	20. Distance & direction to the nearest residence (feet & compass coordinate)
		Length (feet)	Width (feet)	Height (feet)		
Existing	Existing Medical Device Manufacturing	470.00	280.00	36.00	65.00 165	260.00 340

Part E: Surrounding Building / Residence Information

This table provides detailed information about each building or residence surrounding the plant site. If additional space is needed, you may make a copy of this table. (*All measurements should be given in feet.*)

21. Surrounding Building / Residence Description	22. Surrounding Building / Residence Property Dimensions			23. Distance & direction to the nearest property line or access limiting feature (feet & compass coordinate)	24. Building ID of nearest building on the plant site	25. Distance & direction to the nearest building on the plant site (feet & compass coordinate)
	Length (feet)	Width (feet)	Height (feet)			
Existing Conditions						

Continued on Next Page

Part F: Plant Layout Diagram

This space provides a place for a hand drawn plant layout diagram. It is **optional** to use this space to create your plant layout, but you must include the diagram with your application. If you choose to submit the plant layout in a different format, state “plant layout attached” in the space provided, and submit the information with your completed application. IDEM, OAQ has provided an example of a basic plant layout diagram on the Air Permit Applications Forms website.

OAQ GENERAL SOURCE DATA APPLICATION
GSD-03: Process Flow Diagram

State Form 51599 (R3 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of GSD-03 is to provide a checklist for identifying the information to be included on each Process Flow diagram.
- Complete this form and submit a process flow diagram for each process included in your air permit application.
- IDEM, OAQ has provided detailed instructions for this form and an example of a basic process flow diagram on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for public inspection.

Part A: Process Flow Diagram

Part A provides basic information to understanding the nature of the process. Please use this table as a checklist to indicate that you have included the following items on your process flow diagram (*All throughputs should be given in pounds per hour.*):

1. ☒ **Process Description:** Cook, Incorporated (Cook) is a manufacturer of medical devices. Prior to distribution, Cook sterilizes finished products at its Ellettsville, Indiana facility using ethylene oxide in a low temperature process. Cook currently operates nine (9) ethylene ethylene oxide (EO) sterilization chambers using pure EO as sterilant gas. Gases from all sterilization chambers are evacuated by a dedicated, recirculating oil, liquid ring, vacuum pump to a sterilizer wet acid scrubber for treatment before discharge to the atmosphere. Other existing control equipment includes an additional wet acid scrubber and seven (7) dry bed units.

2. ☒ Process Equipment	3. ☒ Raw Material Input	4. ☒ Process Throughput

5. ☐ Additions ☐ Deletions ☒ Modifications

Use the space below to briefly explain the impacts of the additional equipment, the reason for removing any equipment, and/or the reason for the proposed modification. (*If additional space is needed, please attach a separate sheet with the information and indicate in the space below that additional information is attached.*)

Cook proposes an Administrative Amendment of their existing FESOP Renewal as part of their Voluntary Emissions Reduction Program. The Voluntary Emissions Reduction program incorporates the use of eighteen (18) additional dry bed units to control potential fugitive sources of EO and further reduce existing emissions sources at the facility

Part B: Process Operation Schedule

Part B indicates the actual (or estimated actual) hours of operation for the process.

6. ☒ Process Operation Schedule 24 Hours per Day 5 Days per Week 52 Weeks Per Year

7. **Scheduled Downtime:** Use the space below to include as much information as is known about scheduled periods of downtime for this process. (*If additional space is needed, please attach a separate sheet with the information and indicate in the space below that additional information is attached.*)

Part C: Emissions Point Information

Part C provides information about each potential outlet of air pollutant emissions to the atmosphere. Please use this table as a checklist to indicate that you have included the following items on your process flow diagram (*All throughputs should be given in pounds per hour.*):

8. ☒ Stack / Vent Information

Continued on Next Page

9.	☒ Pollutants Emitted
10.	☒ Air Pollution Control

Continued on Next Page

Part D: Process Flow Diagram

This space provides a place for a hand drawn process flow diagram. It is **optional** to use this space to create your process flow diagram, but you must include the diagram with your application. If you choose to submit the process flow diagram in a different format, state “process flow diagram attached” in the space provided, and submit the information with your completed application. IDEM, OAQ has provided an example of a basic process flow diagram on the Air Permit Applications Forms website.

OAQ GENERAL SOURCE DATA APPLICATION
GSD-04: Stack / Vent Information

State Form 51606 (R3 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of this form is to provide basic information about each stack or vent that has the potential to emit air pollutants. If you do not provide enough information to adequately describe each process vent and/or stack, the application process may be stopped. This form is required for all air permit applications.
- Detailed instructions for this form are available online on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for public inspection.

Stack / Vent Information

This table provides detailed information about each stack or vent through which air pollutants could be released into the atmosphere. If an air stream is vented inside a building, the vent does not need to be listed on this form. If additional space is needed, you may make a copy of this form.

1. Stack / Vent ID	2. Type (V H W O)	3. Shape (C R O)	4. Outlet Dimensions (feet)	5. Height (feet)	6. Maximum Outlet Flow Rate (acfm)	7. Outlet Gas Temperature (Degrees F)	8. Related Stacks / Vents (B P O)
RSV01 (Formerly PS01)	V	R	2.00	36.00	6000.00	77.0	
HV01	V	C	2.00	36.00	4000.00	77.0	
HV02 (Relocated)	V	R	2.00	36.00	6000.00	77.0	
SV01	V	R	1.00	36.00	1800.00	77.0	
SV02	V	R	2.00	36.00	6000.00	77.0	
RV02 (NEW)	V	R	2.00	36.00	6000.00	77.0	
RV03 (NEW)	V	R	2.00	36.00	6000.00	77.0	
RV04 (NEW)	V	R	2.00	36.00	6000.00	77.0	
RV05 (NEW)	V	R	2.00	36.00	6000.00	77.0	

OAQ CONTROL EQUIPMENT APPLICATION
CE-01: Control Equipment Summary

State Form 51904 (R3 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of CE-01 is to summarize all of the equipment used to control emissions. This is a required form.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for any one to inspect and photocopy.

Summary of Control Equipment

This table summarizes all of the equipment used to control air pollutant emissions. The identification numbers listed on this form should correspond to the emissions unit identified on the Plant Layout diagram and Process Flow diagram.

1. Control Equipment ID	2. Control Equipment Description	3. Pollutant Controlled	4. Emission Unit ID	5. Stack / Vent ID	6. Applicable Rule
Primary Scrubber & Abatement Group C	Primary Scrubber removes ethylene oxide from sterilizer when sterilization cycle is complete	VOC (ethylene oxide)	S1-S9	RSV01	326 IAC 2-8-4
S1-S7 Chamber Exhaust Vent	Exhausts residual ethylene oxide when sterilizer door is opened to remove product	VOC (ethylene oxide)	S1-S7	SV01	326 IAC 2-8-4
S8-S9 Chamber Exhaust Vent (Abatement Group A)	Exhausts residual ethylene oxide when sterilizer door is opened to remove product	VOC (ethylene oxide)	S8-S9	SV02	326 IAC 2-8-4
Hot Cells 1-14	Aeration chambers where palletized product is degassed after removal from the sterilizers	VOC (ethylene oxide)	S1-S9	HV01	326 IAC 2-8-4
Hot Cell Pre-scrubber	Removes ethylene oxide from Hot Cells prior to further removal in the Hot Cell Reactors	VOC (ethylene oxide)	Hot Cells 1-14	HV01	326 IAC 2-8-4
Hot Cell Reactors A, B, & C	Final removal of ethylene oxide gasses from the Hot Cells prior to atmosphere exhaust	VOC (ethylene oxide)	Hot Cells 1-14, Hot Cell Pre-scrubber	HV01	326 IAC 2-8-4
Abatement Group B	Aeration Bypass	VOC (ethylene oxide)	Fugitives	HV02	
Abatement Group C	Sterilization Rooms 1 & 2 Vents	VOC (ethylene oxide)	Fugitives	RSV01	
Abatement Group D	Sterilization Rooms 3 & 4 Vents	VOC (ethylene oxide)	Fugitives	RV02	
Abatement Group E	Sterilization Rooms 5 & 6 Vents	VOC (ethylene oxide)	Fugitives	RV03	
Abatement Group F	EO Dispensing Room	VOC (ethylene oxide)	Fugitives	RV04	

Abatement Group G	Sterilization Room 7 Vents	VOC (ethylene oxide)	Fugitives	RV05	

OAQ AIR PERMIT APPLICATION – FORMS CHECKLIST

State Form 51607 (R5 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of this checklist is to help the applicant and IDEM, OAQ ensure that the air permit application packet is administratively complete. This checklist is a required form.
- Check the appropriate box indicating whether each application form is applicable for the current permit application. The source must submit only those forms pertinent to the current permit application.
- Place this checklist between the cover sheet and all subsequent forms and attachments that encompass your air permit application packet.

Part A: General Source Data

Applicable?	Form ID	Title of Form	State Form Number	When should this form be included in my application packet?
☒ Y ☐ N	COVER	Application Cover Sheet	50639	Include for every application, modification, and renewal, including source specific operating agreements (SSOA).
☒ Y ☐ N	CHECKLIST	Forms Checklist	51607	Include for every application, modification, and renewal, including SSOA.
☒ Y ☐ N	GSD-01	Basic Source Level Information	50640	Include for every application, modification, and renewal, including SSOA.
☒ Y ☐ N	GSD-02	Plant Layout Diagram	51605	Include for every new source application, and modification.
☒ Y ☐ N	GSD-03	Process Flow Diagram	51599	Include one for every process covered by the application.
☒ Y ☐ N	GSD-04	Stack / Vent Information	51606	Include for every new source application, and modification.
☐ Y ☒ N	GSD-05	Emissions Unit Information	51610	Include for every process covered by the application.
☐ Y ☒ N	GSD-06	Particulate Emissions Summary	51612	Include if the process has particulate emissions (PM).
☐ Y ☒ N	GSD-07	Criteria Pollutant Emissions Summary	51602	Include if the process has criteria pollutant emissions.
☐ Y ☒ N	GSD-08	HAP Emissions Summary	51604	Include if the process has hazardous air pollutant emissions (HAP).
☐ Y ☒ N	GSD-09	Summary of Additional Information	51611	Include if the additional information is included.
☐ Y ☒ N	GSD-10	Insignificant Activities	51596	Include if there are unpermitted insignificant activities.
☐ Y ☒ N	GSD-11	Alternative Operating Scenario	51601	Include if an AOS is requested.
☐ Y ☒ N	GSD-12	Affidavit of Nonapplicability	51600	Include if the standard notification requirements do not apply.
☐ Y ☒ N	GSD-13	Affidavit of Applicability	51603	Include if the standard notification requirements apply.
☐ Y ☒ N	GSD-14	Owners and Occupants Notified	51609	Include if the standard notification requirements apply.
☐ Y ☒ N	GSD-15	Government Officials Notified	51608	Include if the standard notification requirements apply.
☐ Y ☒ N	RENEWAL	Renewal Checklist	51755	Include with every operating permit renewal packet.

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Part B: Process Information				
Applicable?	**Form ID**	**Title of Form**	**State Form Number**	**When should this form be included in my application packet?**
☐ Y ☒ N	AEF-01	Alternate Emission Factor Request	51860	Submit if you are requesting to use an emission factor other than AP-42.
☐ Y ☒ N	PI-01	Miscellaneous Processes	52534	Include one form for each process for which there is not a specific PI form.
☐ Y ☒ N	PI-02A	Combustion Unit Summary	52535	Include one form to summarize all combustion units *(unless SSOA).*
☐ Y ☒ N	PI-02B	*Combustion:* Boilers, Process Heaters, & Furnaces	52536	Include one form for each boiler, process heater, or furnace *(unless SSOA).*
☐ Y ☒ N	PI-02C	*Combustion:* Turbines & Internal Combustion Engines	52537	Include one form for each turbine or internal combustion engine *(unless SSOA).*
☐ Y ☒ N	PI-02D	*Combustion:* Incinerators & Combustors	52538	Include one form for each incinerator or combustor *(unless SSOA).*
☐ Y ☒ N	PI-02E	*Combustion:* Kilns	52539	Include one form for each kiln *(unless SSOA).*
☐ Y ☒ N	PI-02F	*Combustion:* Fuel Use	52540	Include one form for each combustion unit *(unless SSOA).*
☐ Y ☒ N	PI-02G	*Combustion:* Emission Factors	52541	Include one form for each combustion unit *(unless SSOA).*
☐ Y ☒ N	PI-02H	*Combustion:* Federal Rule Applicability	52542	Include one form for each combustion unit *(unless SSOA).*
☐ Y ☒ N	PI-03	Storage and Handling of Bulk Material	52543	Include if the process involves the storage and handling of bulk materials.
☐ Y ☒ N	PI-04	Asphalt Plants	52544	Include for each asphalt plant process (*unless general permit*).
☐ Y ☒ N	PI-05	Brick / Clay Products	52545	Include for each brick and/or clay products process.
☐ Y ☒ N	PI-06	Electroplating Operations	52546	Include for each electroplating process.
☐ Y ☒ N	PI-07	Welding Operations	52547	Include for each welding process.
☐ Y ☒ N	PI-08	Concrete Batchers	52548	Include for each concrete batcher *(unless SSOA).*
☐ Y ☒ N	PI-09	Degreasing	52549	Include for each degreasing process *(unless SSOA).*
☐ Y ☒ N	PI-10	Dry Cleaners	52550	Include for each dry cleaning process
☐ Y ☒ N	PI-11	Foundry Operations	52551	Include for each foundry process
☐ Y ☒ N	PI-12	Grain Elevators	52552	Include for each grain elevator *(unless SSOA).*
☐ Y ☒ N	PI-13	Lime Manufacturing	52553	Include for each lime manufacturing process.
☐ Y ☒ N	PI-14	Liquid Organic Compound Storage	52554 (doc)	Include if the process involves the storage of liquid organic compounds.
☐ Y ☒ N	PI-14ALT	Alternate version of Liquid Organic Compound Storage	52555 (xls)	Include if the process involves the storage of liquid organic compounds and there are several storage vessels.
☐ Y ☒ N	PI-15	Portland Cement Manufacturing	52556	Include for each Portland cement manufacturing process.
☐ Y ☒ N	PI-16	Reinforced Plastics & Composites	52557	Include for each reinforced plastics and composites process.

Continued on Next Page

Part B: Process Information				
Applicable?	**Form ID**	**Title of Form**	**State Form Number**	**When should this form be included in my application packet?**
☐ Y ☒ N	PI-17	Blasting Operations	52558	Include for each blasting process *(unless SSOA).*
☐ Y ☒ N	PI-18	Mineral Processing	52559	Include if the process involves mineral processing *(unless SSOA)*.
☐ Y ☒ N	PI-19	Surface Coating & Printing Operations	52560	Include for each surface coating or printing process *(unless SSOA).*
☐ Y ☒ N	PI-20	Woodworking / Plastic Machining	52561	Include for each woodworking or plastic machining process *(unless SSOA).*
☐ Y ☒ N	PI-21	Site Remediation	52570	Include for each soil remediation process.
☐ Y ☒ N	PI-22	Ethanol Plants ***(Under Development)***	None	Include for each ethanol plant.

Part C: Control Equipment				
Applicable?	**Form ID**	**Title of Form**	**State Form Number**	**When should this form be included in my application packet?**
☒ Y ☐ N	CE-01	Control Equipment Summary	51904	Include if add-on control equipment will be used for the process.
☐ Y ☒ N	CE-02	Particulates – Baghouse / Fabric Filter	51953	Include for each baghouse or fabric filter.
☐ Y ☒ N	CE-03	Particulates – Cyclone	52620	Include for each cyclone.
☐ Y ☒ N	CE-04	Particulates – Electrostatic Precipitator	52621	Include for each electrostatic precipitator.
☐ Y ☒ N	CE-05	Particulates – Wet Collector / Scrubber / Absorber	52622	Include for each wet collector, scrubber, or absorber.
☐ Y ☒ N	CE-06	Organics – Flare / Oxidizer / Incinerator	52623	Include for each flare, oxidizer, or incinerator.
☐ Y ☒ N	CE-07	Organics – Adsorbers	52624	Include for each adsorber.
☐ Y ☒ N	CE-08	Organics – Condenser	52625	Include for each condenser.
☐ Y ☒ N	CE-09	Reduction Technology	52626	Include for each control device using reduction technology (e.g., SCR, SNCR).
☐ Y ☒ N	CE-10	Miscellaneous Control Equipment	52436	Include one form for equipment for which there is not a specific CE form.

Continued on Next Page

Part D: Compliance Determination for Part 70 Sources				
Applicable?	**Form ID**	**Title of Form**	**State Form Number**	**When should this form be included in my application packet?**
☐ Y ☒ N	CD-01	Emissions Unit Compliance Status	51861	Include for every Title V application, including modifications.
☐ Y ☒ N	CD-02	Compliance Plan by Applicable Requirement	51862	Include for every Title V application, including modifications.
☐ Y ☒ N	CD-03	Compliance Plan by Emissions Unit	51863	Include for every Title V application, including modifications.
☐ Y ☒ N	CD-04	Compliance Schedule and Certification	51864	Include for every Title V application, including modifications and renewal.
☐ Y ☒ N	FED-03	Compliance Assurance Monitoring	53377	Include for every Title V application, including modifications.

Part E: Best Available Control Technology				
Applicable?	**Form ID**	**Title of Form**	**State Form Number**	**When should this form be included in my application packet?**
☐ Y ☒ N	BACT-01	Analysis of Best Available Control Technology	None	Include for every BACT application.
☐ Y ☒ N	BACT-01a	Background Search: Existing BACT Determinations	None	Include for every BACT application.
☐ Y ☒ N	BACT-01b	Cost/Economic Impact Analysis	None	Include for every BACT application.
☐ Y ☒ N	BACT-02	Summary of Best Available Control Technology	None	Include for every BACT application.
☐ Y ☒ N	PSD / EO-01	PSD / Emission Offset Checklist	None	Include for every PSD application and every NSR application that requires emission offsets.

Part F: Emission Credit Registry				
Applicable?	**Form ID**	**Title of Form**	**State Form Number**	**When should this form be included in my application packet?**
☐ Y ☒ N	EC-01	Generation of Emission Credits	51783	Include if the modification results in emission reductions.
☐ Y ☒ N	EC-02	Transfer of Emission Credits	51784	Submit whenever registered emission credits are transferred.
☐ Y ☒ N	EC-03	Use of Emission Credits	51785	Include if the modification requires the use of emission credits for offsets.
☐ Y ☒ N	EC-04	Emission Credit Request	51906	Submit if you are looking for emission credits for offsets.

Continued on Next Page

Part G: Plantwide Applicability Limits				
Applicable?	**Form ID**	**Title of Form**	**State Form Number**	**When should this form be included in my application packet?**
☐ Y ☒ N	PAL-01	Actuals Plantwide Applicability Limit	52451	Include if the modification results in emission reductions.
☐ Y ☒ N	PAL-02	Revised Plantwide Applicability Limit	52452	Submit whenever registered emission credits are transferred.
☐ Y ☒ N	PAL-03	Plantwide Applicability Limit Renewal	52453	Include if the modification requires the use of emission credits for offsets.
☐ Y ☒ N	PAL-04	Request for Termination of Plantwide Applicability Limit	52454	Submit if you are looking for emission credits for offsets.

Part H: Air Toxics				
Applicable?	**Form ID**	**Title of Form**	**State Form Number**	**When should this form be included in my application packet?**
☐ Y ☒ N	FED-01	Summary of Federal Requirements – NSPS & NESHAP	53512	Include for each 40 CFR Part 60 NSPS, 40 CFR Part 61 NESHAP, and 40 CFR Part 63 NESHAP applicable to the process.
☐ Y ☒ N	FED-02	MACT Pre-Construction Review	51905	Include if constructing or modifying a process subject to a Part 63 NESHAP.
☐ Y ☒ N	No Form ID	MACT Initial Notification	None	This form is available on the U.S. EPA website. Completed notifications should be submitted to the IDEM Compliance Branch.

Part I: Special Permits				
Applicable?	**Form ID**	**Title of Form**	**State Form Number**	**When should this form be included in my application packet?**
☐ Y ☒ N	INTERIM	Interim Approval	None	Submit if you are applying for interim operating approval.
☐ Y ☒ N	ASPHALT	Asphalt General Permit	None	Submit if you are applying for or modifying an asphalt plant general permit.
☐ Y ☒ N	NOXBTP	NO_X Budget Permit	None	Submit if you are a power plant or if you have opted in to the NO_X budget trading program.
☐ Y ☒ N	ACIDRAIN	Phase 2 Acid Rain Permit	None	Submit if you are applying for, modifying, or renewing a Phase 2 Acid Rain permit.

Continued on Next Page

Part J: Source Specific Operating Agreements (SSOA)				
Applicable?	**Form ID**	**Title of Form**	**State Form Number**	**When should this form be included in my application packet?**
☐ Y ☒ N	OA-01	Summary of Application and Existing Agreements	53438	Submit if you are applying for or modifying a Source Specific Operating Agreement.
☐ Y ☒ N	OA-02	Industrial / Commercial Surface Coating Operations -OR- Graphic Arts Operations (326 IAC 2-9-2.5)	53439	Submit if you are applying for or modifying a SSOA for industrial or commercial surface coating operations not subject to 326 IAC 8-2; or graphic arts operations not subject to 326 IAC 8-5-5.
☐ Y ☒ N	OA-03	Surface Coating or Graphic Arts Operations (326 IAC 2-9-3)	53440	Submit if you are applying for or modifying a SSOA for surface coating or graphic arts operations.
☐ Y ☒ N	OA-04	Woodworking Operations (326 IAC 2-9-4)	53441	Submit if you are applying for or modifying a SSOA for woodworking operations.
☐ Y ☒ N	OA-05	Abrasive Cleaning Operations (326 IAC 2-9-5)	53442	Submit if you are applying for or modifying a SSOA for abrasive cleaning operations.
☐ Y ☒ N	OA-06	Grain Elevators (326 IAC 2-9-6)	53443	Submit if you are applying for or modifying a SSOA for grain elevators.
☐ Y ☒ N	OA-07	Sand And Gravel Plants (326 IAC 2-9-7)	53444	Submit if you are applying for or modifying a SSOA for sand and gravel plants.
☐ Y ☒ N	OA-08	Crushed Stone Processing Plants (326 IAC 2-9-8)	53445	Submit if you are applying for or modifying a SSOA for crushed stone processing plants.
☐ Y ☒ N	OA-09	Ready-Mix Concrete Batch Plants (326 IAC 2-9-9)	53446	Submit if you are applying for or modifying a SSOA for ready-mix concrete batch plants.
☐ Y ☒ N	OA-10	Coal Mines And Coal Preparation Plants (326 IAC 2-9-10)	53447	Submit if you are applying for or modifying a SSOA for coal mines and coal preparation plants.
☐ Y ☒ N	OA-11	Automobile Refinishing Operations (326 IAC 2-9-11)	53448	Submit if you are applying for or modifying a SSOA for automobile refinishing operations.
☐ Y ☒ N	OA-12	Degreasing Operations (326 IAC 2-9-12)	53449	Submit if you are applying for or modifying a SSOA for degreasing operations.
☐ Y ☒ N	OA-13	External Combustion Sources (326 IAC 2-9-13)	53450	Submit if you are applying for or modifying a SSOA for external combustion sources.
☐ Y ☒ N	OA-14	Internal Combustion Sources (326 IAC 2-9-14)	53451	Submit if you are applying for or modifying a SSOA for internal combustion sources.

ATTACHMENT A

Administrative Amendment Narrative

I. ELLETTSVILLE NORTH STERILIZATION

A. Introduction

Cook Incorporated (Cook) is undertaking an ambitious plan to voluntarily reduce emissions from its Ellettsville North Sterilization Facility to extremely low levels (the "Voluntary Emissions Reduction Program"). The intent of the Voluntary Emissions Reduction Program is to minimize, to the extent feasible, contributions from fugitive sources of Ethylene Oxide (EO) and to further reduce emissions from the facility's sterilization chambers, which are already controlled by a wet acid scrubber.

Accordingly, Cook attended a meeting with Indiana's Department of Environmental Management (IDEM) on October 16, 2019 to review and discuss the installation of an additional eighteen (18) dry bed reactors to further control facility emissions, resulting in a total of twenty-five (25) dry bed units in operation at Ellettsville North.

After receiving relevant local approvals, the additional control equipment was installed on a voluntary basis per discussions with IDEM. The abatement systems are located adjacent to the recently installed back vent controls for Sterilizers S8 & S9 that were permitted under Administrative Amendment 41050. As part of the Voluntary Emissions Reduction Program Cook seeks approval from IDEM to incorporate these new controls into its air permit and any corresponding revisions to their Controlled Potential to Emit (Controlled PTE) for the entire source at Ellettsville North.

B. Regulatory Background

IDEM recently renewed Cook's Federally Enforceable State Operating Permit (No. 105-40774-00030) on August 30, 2019 (FESOP Renewal). Prior to the FESOP Renewal, Cook was also issued an Administrative Amendment on February 25, 2019 for the voluntary installation and operation of back-vent controls for Sterilization Chambers S8 & S9.

The following regulatory timeline provides an overview of permit renewals, permit revisions, administrative amendments and other key regulatory compliance dates since Cook's initial FESOP was issued.

- **February 16, 1998** - Office of Air Quality issues Cook's FESOP (F105-8436-00030).

- **October 14, 2004** - Office of Air Quality issues Cook's First FESOP Renewal (F105-15590-00030) as a renewal of F105-8436-00030 with an expiration date of October 14, 2009.
- **August 24, 2009** - Office of Air Quality issues Cook's Second FESOP Renewal (F105-27381-00030) as a renewal of F105-15590-00030 with an expiration date of August 24, 2019.
- **June 25, 2010** - Office of Air Quality issues F105-29042-00030 as the First Significant Revision to F105-27381-00030 for the installation of two (2) existing emergency generators.
- **September 7, 2012** - Office of Air Quality issues F105-32055-0030 as the Second Significant Revision to F105-27381-00030 for the installation of Sterilization Chambers S8 & S9.
- **February 25, 2019** - Office of Air Quality issues F105-41050-00030 as an Administrative Amendment to F105-27381-00030 for the addition of the Sterilization Chambers S8 & S9 Back-Vent Controls.
- **August 30, 2019** - Office of Air Quality issues Cook's Third FESOP Renewal (F105-40744-00030) as a renewal of F105-27381-00030 with an expiration date of August 30, 2029.

C. Sterilization Overview

The Ellettsville North sterilization process utilizes a combination of wet acid scrubbing and chemisorption (dry bed reaction) to control EO emissions from nine (9) existing sterilizers and associated fourteen (14) aeration rooms (hot cells). Current emissions control systems consist of two (2) wet acid scrubbers and seven (7) dry bed reactors manufactured by Advanced Air Technologies of Corunna, MI. The various control equipment is designed to effectively reduce emissions from the sources listed below:

Current Emissions Sources

Sterilization Chamber Vent (SCV) exhausts are controlled by a single wet acid scrubber (Primary Scrubber). This scrubber has a minimum control (removal) efficiency of 99% and has a rated flow capacity of 360 cfm. A maximum of four sterilizers can be simultaneously discharged at Cook via SCV exhausts per the current FESOP Renewal.

Chamber Exhaust Vents (CEV, or Back vents) from Sterilizers S-1 through S-7 are controlled by a single dedicated dry bed reactor with a minimum control (removal) efficiency of 99%. The back-vent exhaust from Sterilizers S-8 and S-9 are exhausted to a secondary set of three (3) dry bed reactors ducted in parallel with a minimum control (removal) efficiency of 99%.

Fugitives (Product Transfer) are defined as emissions that are not easily accounted for or isolated during a given stage of a designed sterilization cycle. Fugitive emissions at Ellettsville North are primarily associated with the following:

i. Back-Vent Fugitives: Following the SCV Cycle, the sterilization chamber door is "cracked" open to initiate the back-vent cycle and triggers the operation of roof-mounted blowers. These blowers are intended to flush out residual EO from within the chamber before product transfer. Air from the sterilization room is drawn through the chamber, routed through the dry bed units and then exhausted to atmosphere. When the chamber door is initially cracked, any delay in the negative pressure while initiating blowers can contribute to temporary fugitives within the sterilization room.

ii. Product Transfer Fugitives: Following back-venting, product is manually transferred from a sterilization chamber to aeration rooms. The sterilizers are emptied one pallet at a time over the course of approximately 10 minutes. During unloading of a sterilizer, the sterilizer door is left open and the back-vent blower is operated to help maintain a negative pressure in the sterilization chamber/transfer area. Sterilization room exhaust vents located within each sterilization room maintain a negative pressure by ventilating air and exhausting directly to atmosphere.

iii. Aeration Fugitives: During Cook's Product Transfer process the aeration room doors are opened to allow loading of product. When the aeration room doors are opened, an Aeration Bypass Exhaust initiates to withdraw air at a negative pressure away from the operators. The Aeration Bypass Exhaust emits directly to atmosphere and is typically in use for 5-10 minutes during product transfer. Once the aeration room doors are closed, the Aeration Room Vents (ARV) are initiated (see below).

iv. EO Dispensing: Although there are measures in place to avoid fugitive EO associated with the EO dispensing process, including Nitrogen blankets and blow out valves, in the very unlikely event that any EO were introduced into the dispensing room this would also be considered a fugitive emission. Accordingly, Cook has included this within their fugitive analysis discussed in **Section IV**.

Aeration Room Vents (ARV) are initiated after the aeration room doors are closed. ARV emissions are initially directed to a dedicated wet acid pre-scrubber (designated Aeration Scrubber) to remove the bulk of the ethylene oxide prior to exhausting through a series of three (3) dry bed reactors, which are ducted in parallel. The minimum control efficiency of this process train, likewise, is 99%.

Table 1
Current Emissions Control Requirements - Ellettsville North

Source	Control System	EO Control Efficiency
Chamber (Vacuum) Vent or SCV	Wet Scrubber	At least 99% reduction
Chamber Exhaust Vent (Back-Vent)	DR-490 Dry Bed	1ppmv or by 99%, whichever is less stringent
Fugitives (Product Transfer)	No Control	0% reduction
Aeration Room Vent (ARV)	Wet Scrubber/Dry Bed Reactors	1ppmv or by 99%, whichever is less stringent

Currently potential fugitive emissions are exhausted uncontrolled directly to atmosphere, which moving forward will be controlled as part of Cook's Voluntary Emissions Reduction Program.

D. Existing Facility Ventilation for Fugitives

Ellettsville North utilizes seven (7) sterilization rooms and an EO storage/dispensing room for continuous ventilation of fugitives and recirculation of ambient air at the facility. As detailed above, the facility is designed to maintain continuous negative pressure to mitigate potential fugitives and employee exposure during product transfer.

The following vent locations were historically operated at the facility to maintain negative pressure at the facility via existing roof-mounted blowers exhausting directly to atmosphere:

Table 2
Ellettsville North Room Exhaust Vent Locations (Uncontrolled)

Location	Relevant Chambers	Fugitive Source	Exhaust Rate (CFM)
Sterilization Room 1	Chamber S1	Back-Vent / Product Transfer	2,750±
Sterilization Room 2	Chamber S2	Back-Vent / Product Transfer	2,750±
Sterilization Room 3	Chamber S3	Back-Vent / Product Transfer	2,550±
Sterilization Room 4	Chamber S4	Back-Vent / Product Transfer	3,000±
Sterilization Room 5	Chamber S5 & S6	Back-Vent / Product Transfer	3,000±
Sterilization Room 6	Chamber S7	Back-Vent / Product Transfer	3,000±
Sterilization Room 7	Chamber S8 & S9	Back-Vent / Product Transfer	7,500±
EO Dispensing Room	NA	EO Dispensing	5,400±
Aeration Bypass	NA	Product Transfer	5,500±

II. FESOP FRACTIONAL EMISSIONS AND CURRENT EMISSIONS BY SOURCE

A. Emissions by Source

Fractional EO emissions sources associated with Cook operations, as detailed within the Technical Support Document for the most recent FESOP Renewal, are identified in the permit as follows:

Table 3
Fractional Emissions by Source - Ellettsville North

Source	Stack Vent Identification	Fraction of EO Usage
Sterilization Chamber Vents	PS01	0.9500 (95.00%)
Back Vents	SV01 & SV02	0.0035 (0.35%)
Fugitives/Product Transfer	-	0.0021 (0.21%)
Aeration	HV01	0.0444 (4.44%)

B. Current Maximum Controlled Potential to Emit

The current maximum Controlled PTE for EO is provided within the FESOP Renewal. Using fractional emissions by source from Table 3, Controlled PTE is derived using annual EO usage at the facility and rated minimum control efficiencies for abatement systems (Table 1), where applicable:

Table 4
FESOP Maximum Controlled Emissions by Source & Facility

Source	Sterilizers S1-S7		Sterilizers S8-S9		Total Facility
	lbs/year	tons/year	lbs/year	tons/year	Tons/year
Sterilization Chamber Vents	720	0.360	456.7	0.23	0.588
Back Vents	2.6	0.001	1.68	0.00	0.002
Fugitives/Product Transfer	156.0	0.078	101.0	0.05	0.128
Aeration	33.4	0.017	21.35	0.01	0.028
Total Facility	**912.0**	**0.46**	**580.74**	**0.29**	**0.75**

Exhaust stack identifications are shown within Cook's Proposed Process Flow Diagram (PFD), which is provided as **Attachment C**. Current annual maximum Controlled PTE is also provided within *Appendix A: Emissions Calculations* to the Technical Support Document in Cook's FESOP Renewal.

III. ADMINISTRATIVE AMENDMENT OVERVIEW

Having completed voluntary installation of back-vent controls for Sterilizers S8 & S9, Cook implemented a Voluntary Emissions Reduction Program to facilitate further reduction in facility Controlled PTE. The intent of the Voluntary Emissions Reduction Program is to minimize, to the extent feasible, contributions from any fugitive sources and further reduction of SCV emissions from the facility.

Accordingly, after discussions with IDEM, Cook completed their planned installation of an additional eighteen (18) dry bed units, resulting in a total of twenty-five (25) dry bed units in operation at Ellettsville North. The dry bed units also received local building approvals and are currently installed adjacent to the new control room for Chamber S8 and S9 back vents (see **Attachment D**).

A. Control System Operating Principles

Advanced Air Technologies, Inc. of Corunna, MI manufactured the emissions control equipment currently in operation at Ellettsville North. The eighteen (18) dry bed reactors are equivalent Safe Cell II systems, Model No. DR-490A, designated as Abatement Groups B through G (see **Attachment D**). For reference purposes, the aforementioned dry bed units associated with the back-vent controls for Sterilizers S8 & S9 are referred to as *Abatement Group A* at the Facility.

The operating principle of a dry bed reactor is solid-phase reaction, a chemical reaction where the ethylene oxide gas contacts and reacts with a solid. Ethylene oxide gas molecules contact the crystallized solid and react with active sites distributed throughout the solid matrix. The solid is crystallized in order to increase the surface area to volume ratio of the solid and enhance diffusion of gases through the porous matrix.

The control mechanism of the Dry Bed Reactor is a true chemical reaction rather than a physical phenomenon such as adsorption. The gas stream containing ethylene oxide is introduced into the vessel and reacts with the crystallized bed as it proceeds.

IV. PROPOSED ADMINISTRATIVE AMENDMENT

A. Fugitive Emissions Reduction Design

Cook's Voluntary Emissions Reduction Program routes previously uncontrolled ventilation systems through the DR-490 dry bed units to provide supplemental EO emissions control to further minimize Controlled PTE at the Ellettsville North facility.

i. Room Exhaust Vent Controls

Room Exhaust Vents associated with Sterilization Rooms 1 through 7 and the EO Dispensing Room currently exhaust directly to atmosphere without control. Cook's Voluntary Emission Reduction Program utilizes existing room exhaust vents routed to five (5) dedicated Abatement Groups, each consisting of three (3) dry bed reactors run in parallel.

[redacted]

Utilizing exhaust rates from Table 2, the following configuration was designed to generally maintain or increase exhaust rates relative to the historically operated exhaust vents while concurrently implementing control systems:

Table 5
Abatement Groups & Existing Room Exhaust Vents

Room Exhaust Vent Location	Previous Exhaust Rate (CFM)	New Reduction Equipment	Resulting Exhaust Rate (CFM) & Stack ID
Sterilization Room 1	2,750±	Three Dry Bed Units in Parallel *(Abatement Group C)*	6,000± (RSV01)[1]
Sterilization Room 2	2,750±		
Sterilization Room 3	2,550±	Three Dry Bed Units in Parallel *(Abatement Group D)*	6,000± (RV02)
Sterilization Room 4	3,000±		
Sterilization Room 5	3,000±	Three Dry Bed Units in Parallel *(Abatement Group E)*	6,000± (RV03)
Sterilization Room 6	3,000±		
Sterilization Room 7	7,400±	Three Dry Bed Units in Parallel *(Abatement Group G)*	6,000± (RV05)
EO Dispensing Room	5,400±	Three Dry Bed Units in Parallel *(Abatement Group F)*	6,000± (RV04)

[1] See Section IV(B) for an explanation regarding RSV nomenclature.

Five dedicated stacks designated as RSV01 and RV02 through RV05 exhaust emissions from the dry beds to the atmosphere. Refer to **Attachment D** for stack locations and **Attachment C** for Cook's Revised PFD for facility emissions.

ii. Aeration Bypass Exhaust Control

As detailed in Section I, an Aeration Bypass Exhaust is utilized during product transfer only when an aeration room door is open. As part of the reduction program, the Aeration Bypass Exhaust duct routes to three dedicated dry bed reactors run in parallel. As shown in Table 2, the current flow rate for the bypass is approximately 5,500cfm. A single roof mounted Series 20 General Industrial radial blower rated at 6,000 cfm is proposed to draw air flow through the aeration bypass and exhaust via new dedicated stack designated as HV02. [redacted]

B. Secondary Sterilization Chamber Vent Control System

Typically, the highest concentrations of EO experienced by abatement equipment are associated with the SCV cycle. The SCV cycle is considered the first 'evacuation' after completion of an in-chamber EO exposure period for products being sterilized. Currently, the SCV wet scrubber system utilizes a [redacted] with a minimum rated removal efficiency of 99%. The SCV exhaust is currently rated at 360 cfm and historically exhausted through stack SV01.

Although it is unlikely that emissions are present above detection limits during normal operations, the minimum rated efficiency of 99% results in a calculated Controlled PTE of 0.59 tons/year, which accounts for 90% of the total potential EO emissions within Cook's Controlled PTE.

Cook implemented a secondary reduction system to further reduce potential EO emissions associated with the SCV source. [redacted]

Additionally, the contribution of airflow from the two above-mentioned sterilization rooms will effectively dilute wet scrubber emissions with 5,640-cfm of air flow at ambient temperature and ambient moisture.

[redacted]

Implementation of [redacted]l. Existing duct work relevant to testing requirements for the five (5) year performance testing of the wet scrubber has not been modified and Cook will continue to complete source tests per their FESOP as required by the NESHAP.

Design plans identifying the location of the dry beds along with associated ductwork are provided within **Attachment D** and specification sheets for the Safe Cell II Dry Bed Units are provided as **Attachment E**. An updated Process Flow Diagram for the Room Exhaust Vents, Aeration Bypass Exhaust, and SCV Secondary Reduction is provided as **Attachment C**.

V. PROPOSED FACILITY EMISSIONS

After implementation of secondary abatement and emissions control for facility fugitives the annual maximum Controlled PTE associated with Cook Sterilization Operations are revised as follows:

Table 6
Revised Controlled Potential to Emit by Source

Source	Emissions Controls	Sterilizers S1-S7		Sterilizers S8/S9		Total Facility
		lbs/yr	tons/yr	lbs/yr	tons/yr	tons/yr
Sterilization Chamber Vents	Primary-Wet Scrubber (99%) Secondary-Dry Beds (99%)	7.2	0.004	4.6	0.002	0.006
Back Vents	At least 99%	2.6	0.001	1.7	0.001	0.002
Fugitives/Product Transfer	At least 99%	1.56	0.001	1.01	0.001	0.002
Aeration	At least 99%	33.4	0.017	21.4	0.011	0.028
Total Facility		44.76	0.023	28.61	0.015	0.038

Controlled PTE calculations utilize minimum reduction efficiency ratings of 99% provided by the manufacturer. The resulting revised maximum Controlled PTE for facility emissions at Ellettsville North is reduced from 1,493 pounds per year to approximately 73.4 pounds annually.

No modifications to the existing back-vent controls are proposed as part of this Administrative Amendment.

VI. ADMINISTRATIVE AMENDMENT SUMMARY

A. Cook has elected to voluntarily achieve further reduction of their Controlled PTE for the Ellettsville North facility as part of its Voluntary Emissions Reduction Program.

B. The Voluntary Emissions Reduction Program proposes the installation of eighteen (18) DR-490 dry bed units to reduce potential fugitive emissions from the existing Aeration Bypass Exhaust and Room Exhaust Vents. Three of the dry bed units are utilized as secondary abatement for the existing Primary Wet Scrubber to further reduce potential emissions from the SCV Cycle for Sterilizers 1 through 9.

C. Six (6) roof mounted Series 20 General Industrial radial blowers, each rated at 6,000-cfm, will ventilate facility air through the dry bed units and exhausted through associated stacks designated as HV02, RSV-01, and RV02 through RV05. Existing and proposed stacks are shown within the Process Flow Diagram provided as **Attachment C** and summarized below.

Table 7

Revised Stack & Control Equipment Summary – Ellettsville North

	Stack ID	Control Equipment ID	Description/Details
EXISTING STACKS	~~PS01~~ RSV01	Primary Wet Scrubber For SCV	Redirected through Abatement Group C to RSV01 (See Below)
	SV01	Dry Bed Unit for Back Vents	Chamber S1-S7 Back Vents
	SV02	Abatement Group A Dry Beds	Chamber S8-S9 Back Vents
	HV01	Aeration Room Dry Bed Units	Hot Cells 1 through 14
	~~HV02~~ *See Below*	-	Former Aeration Bypass Stack To be relocated and remain as HVO2
NEW STACKS	HV02 (New)	Abatement Group B Dry Beds	Aeration Bypass Exhaust
	RSV01	Abatement Group C Dry Beds	Wet Scrubber Exhaust & Sterilization Room 1 & 2 Ventilation
	RV02	Abatement Group D Dry Beds	Sterilization Room 3 & 4 Ventilation
	RV03	Abatement Group E Dry Beds	Sterilization Room 5 & 6 Ventilation
	RV04	Abatement Group F Dry Beds	EO Dispensing Room Ventilation
	RV05	Abatement Group G Dry Beds	Sterilization Room 7 Ventilation

D. No modifications are proposed to the existing CEV emissions control equipment for Sterilizers S1-S9.

E. Cook is has completed revised Potential to Emit calculations, included herein, reflecting limits of the emissions units. Implementation of the emissions control equipment as detailed herein will effectively, at a minimum, reduce Controlled PTE at Ellettsville North to approximately 73.4 pounds annually.

F. Cook is requesting that IDEM revise Cook's FESOP Renewal under an Administrative Amendment to reflect these voluntary facility changes within the permit and Technical Support Document, including the facility Controlled PTE. Refer to **Attachment B** for a red-line of the FESOP Renewal that incorporates Cook's proposed changes.

ATTACHMENT B

Redlined FESOP Renewal & TSD Tables

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We Protect Hoosiers and Our Environment.
100 N. Senate Avenue • Indianapolis, IN 46204
(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov

Eric J. Holcomb
Governor

DRAFT

Bruno L. Pigott
Commissioner

Federally Enforceable State Operating Permit Renewal
OFFICE OF AIR QUALITY

Cook Incorporated
6300 North Matthews Drive
Ellettsville, Indiana 47429

(herein known as the Permittee) is hereby authorized to operate subject to the conditions contained herein, the source described in Section A (Source Summary) of this permit.

The Permittee must comply with all conditions of this permit. Noncompliance with any provisions of this permit is grounds for enforcement action; permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. An emergency does constitute an affirmative defense in an enforcement action provided the Permittee complies with the applicable requirements set forth in Section B, Emergency Provisions.

This permit is issued in accordance with 326 IAC 2 and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-8 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17.

Indiana statutes from IC 13 and rules from 326 IAC, quoted in conditions in this permit, are those applicable at the time the permit was issued. The issuance or possession of this permit shall not alone constitute a defense against an alleged violation of any law, regulation or standard, except for the requirement to obtain a FESOP under 326 IAC 2-8.

Operation Permit No.: F 105-40744-00030 Master Agency Interest ID: 11774	
Issued by: Josiah K. Balogun, Section Chief Permits Branch Office of Air Quality	Issuance Date: *DRAFT* Expiration Date: *DRAFT*

SECTION A SOURCE SUMMARY

This permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ). The information describing the source contained in conditions A.1 through A.3 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this permit pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

A.1 General Information [326 IAC 2-8-3(b)]

The Permittee owns and operates a stationary medical device manufacturing and sterilization operation.

Source Address:	6300 North Matthews Drive, Ellettsville, Indiana 47429
General Source Phone Number:	(812) 339-2235
SIC Code:	3841 (Surgical and Medical Instruments and Apparatus)
County Location:	Monroe
Source Location Status:	Attainment for all criteria pollutants
Source Status:	Federally Enforceable State Operating Permit Program Minor Source, under PSD Minor Source, Section 112 of the Clean Air Act Not 1 of 28 Source Categories

A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-8-3(c)(3)]

This stationary source consists of the following emission units and pollution control devices:

(a) Seven (7) ethylene oxide sterilization chambers, identified as S1 through S7, Sterilization chambers S1 through S6 were constructed in 1998 and sterilization chamber S7 was constructed in 2004, each using Oxyfume 2000, Oxyfume 2002 or pure ethylene oxide for sterilization, all exhausting to one (1) primary wet acid scrubber ~~combined with~~and three (3) secondary non-regenerable dry bed reactors in parallel which exhaust~~s~~ through one (1) stack, identified as ~~PS01~~RSV01, and with chamber exhaust vents (back vents) exhausting to one (1) single non-regenerable dry bed reactor which exhausts through one (1) stack, identified as SV01.

(b) Two (2) ethylene oxide sterilization chambers, identified as S8 and S9, constructed in 2012, each using Oxyfume 2000, Oxyfume 2002 or pure ethylene oxide for sterilization, each exhausting through a vacuum pump to one (1) primary wet acid scrubber ~~combined with~~and three (3) secondary non-regenerable dry bed reactors in parallel which exhaust~~s~~ through one (1) stack, identified as ~~PS01~~RSV01; and with S8 and S9 chamber exhaust vents (back vents) exhausting to three (3) non-regenerable dry bed reactors, which exhaust through one (1) stack, identified as SV02.

(c) Fourteen (14) aeration rooms, identified as HC1 through HC14, all constructed in 1998, where:

(1) During aeration room loading, an aeration bypass exhausts through three (3) non-regenerable dry bed reactors (in parallel), which exhaust through one (1) stack identified as HV02.

(2) During aeration cycle, ~~of which~~ zero (0) to a maximum of six (6) can exhaust through one (1) wet acid pre-scrubber and three (3) dry bed reactors (in parallel), with the remaining units exhausting solely through the three (3) dry bed reactors (in parallel), all of which exhaust through one (1) stack, identified as HV01.

[Nine (9) ethylene oxide sterilization chambers (S1-S9) and fourteen (14) aeration rooms, (HC1-HC14 are existing affected facilities under 40 CFR 63, Subpart O.]

(d) Eight (8) Facility Room Vents, identified as Sterilization Room Vents (SRV) SRV1 through SRV7 and the ethylene oxide dispensing room vents, exhausting through fifteen (15) non-regenerable dry bed units exhausting through five (5) independent stacks:

(1) SRV1 & SRV2 exhausting through three (3) non-regenerable dry bed reactors (in parallel) and exhausted through one (1) stack identified as RSV01.

(2) SRV3 & SRV4 exhausting through three (3) non-regenerable dry bed reactors (in parallel) and exhausted through one (1) stack identified as RV02.

(3) SRV5 & SRV6 exhausting through three (3) non-regenerable dry bed reactors (in parallel) and exhausted through one (1) stack identified as RV03.

(4) EO Dispensing Room Vent exhausting through three (3) non-regenerable dry bed reactors (in parallel) and exhausted through one (1) stack identified as RV04.

(5) SRV7 exhausting through three (3) non-regenerable dry bed reactors (in parallel) and exhausted through one (1) stack identified as RV05.

(ed) Miscellaneous cleaning with isopropyl alcohol (IPA), methanol, and ethanol.

(fe) One (1) diesel-fired emergency generator, identified as Unit #1, installed on July 31, 2003 and constructed in 2010, with a maximum capacity of 1850 hp, with emissions uncontrolled, and exhausting to the atmosphere.

[The diesel-fired emergency generator, identified as Unit #1 is an existing affected facility under 40 CFR 63, Subpart ZZZZ.]

(gf) One (1) diesel-fired emergency generator, identified as Unit #2, installed on November 19, 2003 and constructed in 2010, with a maximum capacity of 2922 hp, with emissions uncontrolled, and exhausting to the atmosphere.

[The diesel-fired emergency generator, identified as Unit #2 is an existing affected facility under 40 CFR 63, Subpart ZZZZ.]

A.3 Insignificant Activities [326 IAC 2-7-1(21)][326 IAC 2-8-3(c)(3)(I)]

This stationary source also includes the following insignificant activities:

(a) Slipcoating operations consisting of the mixing and coating of medical devices with solids mixed with isopropyl alcohol and water, isopropyl alcohol and methylene chloride, or ethanol to create a hydrophilic surface which is cured by ultraviolet light.

(b) The following storage containers:

(1) nine (9) 100% ethylene oxide storage cylinders with a maximum storage capacity of 400 pounds of ethylene oxide each (3,600 pounds total). These are portable cylinders that will be connected to the sterilization process.

(2) nine (9) 100% ethylene oxide storage cylinders each with a maximum storage capacity of 400 pounds of ethylene oxide on standby for connection to the

SECTION D.1 EMISSIONS UNIT OPERATION CONDITIONS

Facility Description [326 IAC 2-8-4(10)]:

(a) Seven (7) ethylene oxide sterilization chambers, identified as S1 through S7, Sterilization chambers S1 through S6 were constructed in 1998 and sterilization chamber S7 was constructed in 2004, each using Oxyfume 2000, Oxyfume 2002 or pure ethylene oxide for sterilization, all exhausting to one (1) primary wet acid scrubber ~~combined~~ with three (3) secondary non-regenerable dry bed reactors in parallel which exhaust~~s~~ through one (1) stack, identified as ~~PS01~~RSV01, and with chamber exhaust vents (back vents) exhausting to one (1) single non-regenerable dry bed reactor which exhausts through one (1) stack, identified as SV01.

(b) Two (2) ethylene oxide sterilization chambers, identified as S8 and S9, constructed in 2012, each using Oxyfume 2000, Oxyfume 2002 or pure ethylene oxide for sterilization, each exhausting through a vacuum pump to one (1) primary wet acid scrubber with three (3) secondary non-regenerable dry bed reactors in parallel which exhaust~~s~~ through one (1) stack, identified as ~~PS01~~RSV01; and with S8 and S9 chamber exhaust vents (back vents) exhausting to three (3) non-regenerable dry bed reactors, which exhaust through one (1) stack, identified as SV02.

(c) Fourteen (14) aeration rooms, identified as HC1 through HC14, all constructed in 1998, where:

(1) During aeration room loading, an aeration bypass exhausts through three (3) non-regenerable dry bed reactors (in parallel), which exhaust through one (1) stack identified as HV02.

(2) During aeration cycle, zero (0) to a maximum of six (6) can exhaust through one (1) wet acid pre-scrubber and three (3) dry bed reactors (in parallel), with the remaining units exhausting solely through the three (3) dry bed reactors (in parallel), all of which exhaust through one (1) stack, identified as HV01.~~, identified as HC1 through HC14, all constructed in 1998, of which zero (0) to a maximum of six (6) can exhaust through one (1) wet acid pre-scrubber and three (3) dry bed reactors (in parallel), with the remaining units exhausting solely through the three (3) dry bed reactors (in parallel), all of which exhaust through one (1) stack, identified as HV01.~~

[Nine (9) ethylene oxide sterilization chambers (S1-S9) and fourteen (14) aeration rooms, (HC1-HC14 are existing affected facilities under 40 CFR 63, Subpart O.]

(d) Eight (8) Facility Room Vents, identified as Sterilization Room Vents (SRV) SRV1 through SRV7 and the ethylene oxide dispensing room vents, exhausting through fifteen (15) non-regenerable dry bed units exhausting through five (5) independent stacks:

(1) SRV1 & SRV2 exhausting through three (3) non-regenerable dry bed reactors (in parallel) which exhausts through one (1) stack identified as RSV01.

(2) SRV3 & SRV4 exhausting through three (3) non-regenerable dry bed reactors (in parallel) which exhausts through one (1) stack identified as RV02.

(3) SRV5 & SRV6 exhausting through three (3) non-regenerable dry bed reactors (in parallel) which exhausts through one (1) stack identified as RV03.

(4) EO Dispensing Room Vent exhausting through three (3) non-regenerable dry bed reactors (in parallel) which exhausts through one (1) stack identified as RV04.

(5) SRV7 exhausting through three (3) non-regenerable dry bed reactors (in parallel) which

exhausts through one (1) stack identified as RV05.

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-8-4(1)]

D.1.1 Volatile Organic Compounds (VOC) BACT [326 IAC 8-1-6]

Pursuant to FESOP F105-8436-00030, issued on February 16, 1998, and in order to render the requirements of 326 IAC 8-1-6 (VOC Rules: General Reduction Requirements for New Facilities), the following control technology will also serve as the Best Available Control Technology (BACT) for the sterilization operations S1 through S7. The control technology used to comply with the requirements of 40 CFR 63.360 through 63.367, which apply to the sterilization process, in addition to the following:

(a) A single non-regenerable dry bed reactor to reduce ethylene oxide emissions to a maximum concentration of 1 ppmv or by at least 99 percent, whichever is less stringent, to control the seven (7) sterilization chamber exhaust vents, identified as units S1 through S7.

(b) A wet acid pre-scrubber with three (3) dry bed reactors (in parallel) to reduce ethylene oxide emissions to a maximum concentration of 1 ppmv or by at least 99 percent, whichever is less stringent, to control emissions from the fourteen (14) aeration rooms.

Compliance with the above limit in this condition shall satisfy the requirements of 326 IAC 8-1-6 (New Facilities, General Reduction Requirements).

Note: The source will not be required to operate the dry bed reactor to control emissions from the sterilization chamber exhaust vents (back vents) from the two (2) sterilizers S8 and S9, approved for construction in 2012. Although S8 and S9 are not subject to the requirements of 326 IAC 8-1-6, the Permittee voluntarily installed three (3) dry bed reactors (in parallel) to reduce emissions from the back vents from sterilizers S8 and S9.

Note: The Permittee voluntarily installed fifteen (15) dry bed reactors ~~to~~ to minimize, to the extent feasible, contributions from fugitive sources of ethylene oxide. Accordingly, the source will not be required to control the facility room vents from SRV1 through SRV7, the ethylene oxide dispensing room or the control equipment for secondary abatement of the primary wet scrubber

D.1.2 Hazardous Air Pollutants (HAPs) Minor Limits [326 IAC 2-8-4]

Pursuant to 326 IAC 2-8, the total ethylene oxide emissions from the nine (9) ethylene oxide sterilization chambers and the fourteen (14) aeration rooms shall be less than 9.42 tons per twelve (12) consecutive month period, total, with compliance determined at the end of each month.

Compliance with the above limit, combined with the potential to emit ethylene oxide from other emission units at the source, shall limit the ethylene oxide from the entire source to less than 10 tons per twelve (12) consecutive month period, total, total HAPs to less than twenty-five (25) tons per year and render the requirements of 326 IAC 2-7 (Part 70 Permits) and 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP) not applicable.

D.1.3 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

A Preventive Maintenance Plan is required for this facility and any control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

Compliance Determination Requirements [326 IAC 2-8-4(1)]

D.1.4 VOC and HAPs [326 IAC 8-1-6][326 IAC 2-8-4]

(a) In order to assure compliance with Conditions D.1.1, and D.1.2, the primary wet acid scrubber and the single non-regenerable dry bed reactor shall be in operation and control emissions from the seven (7) ethylene oxide sterilization chambers S1 through S7 at all times the ethylene oxide sterilization chambers are in operation.

(b) In order to assure compliance with Conditions D.1.1, and D.1.2, the primary wet acid scrubber shall be in operation and control emissions from the two (2) ethylene oxide sterilization chambers S8 and S9 at all times the ethylene oxide sterilization chambers are in operation.

(c) In order to assure compliance with Conditions D.1.1, and D.1.2, the three (3) dry bed reactors with or without the wet acid pre-scrubber shall be in operation and control emissions from the fourteen (14) aeration rooms at all times the fourteen (14) aeration rooms are in operation.

D.1.5 Testing Requirements [326 IAC 2-1.1-11][40 CFR Part 63, Subpart O]

(a) In order to demonstrate compliance with Condition D.1.1, Condition D.1.2, and Condition E.1.2, the Permittee shall perform a performance test on each of the following control devices:

(1) The one (1) primary wet acid scrubber, exhausting to stack ~~PS01~~RSV01, controlling ethylene oxide emissions from the ~~two (2)~~ sterilization chambers ~~S8~~ S1 through S9;

(2) The single non-regenerable dry bed reactor, exhausting to stack SV01, controlling ethylene oxide Chamber Exhaust Vent (CEV) emissions from the seven (7) sterilization chambers S1 through S7;

(3) The one (1) wet acid pre-scrubber and three (3) dry bed reactors (in parallel), exhausting to stack HV01, controlling ethylene oxide emissions from the fourteen (14) aeration rooms;

utilizing the procedures listed in 40 CFR 63.7 of Subpart A, the procedures listed in 40 CFR 63.363, the test methods listed in 40 CFR 63.365. During the performance test, the owner or operator shall determine the efficiency of the control devices and the site-specific operating parameters for each of the wet acid scrubbers and the dry bed reactors. This test shall be repeated at least once every five (5) years from the date of the most recent valid compliance demonstration. Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures).

(b) Section C - Performance Testing contains the Permittee's obligation with regard to the performance testing required by this condition.

Note: The Permittee shall retain testing requirements for the primary wet acid scrubber under 40 CFR 63.365 for sterilization chambers S1 through S9. If the Permittee were to seek alternatives to the above procedures under 40 CFR 63.365 for added use of dry beds, an approval from the USEPA would be obtained through a revised operational monitoring plan.

SECTION E.1 NESHAP

Emissions Unit Description:

(a) Seven (7) ethylene oxide sterilization chambers, identified as S1 through S7, Sterilization chambers S1 through S6 were constructed in 1998 and sterilization chamber S7 was constructed in 2004, each using Oxyfume 2000, Oxyfume 2002 or pure ethylene oxide for sterilization, all exhausting to one (1) primary wet acid scrubber which exhausts through one (1) stack, identified as ~~PS01~~RSV01, and with chamber exhaust vents (back vents) exhausting to one (1) single non-regenerable dry bed reactor which exhausts through one (1) stack, identified as SV01.

(b) Two (2) ethylene oxide sterilization chambers, identified as S8 and S9, constructed in 2012, each using Oxyfume 2000, Oxyfume 2002 or pure ethylene oxide for sterilization, each exhausting through a vacuum pump to one (1) primary wet acid scrubber which exhausts through one (1) stack, identified as ~~PS01~~RSV01; and with S8 and S9 chamber exhaust vents (back vents) exhausting to three (3) non-regenerable dry bed reactors, which exhaust through one (1) stack, identified as SV02.

(c) Fourteen (14) aeration rooms, identified as HC1 through HC14, all constructed in 1998, where, during the aeration cycle, ~~of which~~ zero (0) to a maximum of six (6) can exhaust through one (1) wet acid pre-scrubber and three (3) dry bed reactors (in parallel), with the remaining units exhausting solely through the three (3) dry bed reactors (in parallel), all of which exhaust through one (1) stack, identified as HV01.

[Nine (9) ethylene oxide sterilization chambers (S1-S9) and fourteen (14) aeration rooms, (HC1-HC14 are existing affected facilities under 40 CFR 63, Subpart O.]]

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

National Emission Standards for Hazardous Air Pollutants (NESHAP) Requirements

E.1.1 General Provisions Relating to NESHAP O [326 IAC 20-1][40 CFR Part 63, Subpart A]

(a) The requirements of 40 CFR Part 63, Subpart A - General Provisions, which are incorporated as 326 IAC 20-1-1, apply to the facilities described in this section except as otherwise specified in 40 CFR 63, Subpart O.

(b) Pursuant to 40 CFR 63.10, the Permittee shall submit all required notifications and reports to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

E.1.2 Ethylene Oxide Emissions Standards for Sterilization Facilities NESHAP [40 CFR Part 63, Subpart O][326 IAC 20-5]

The Permittee shall comply with the following provisions of 40 CFR Part 63, Subpart O (included as Attachment A to the operating permit), which are incorporated by reference as 326 IAC 20-5, for the emission unit(s) listed above: as follows:

(1) 40 CFR 63.360,
(2) 40 CFR 63.361,
(3) 40 CFR 63.362,

Appendix A: Potential Emission Calculations
Source Wide Ethylene Oxide (EO) Emissions by Facility

Company Name: Cook Incorporated
Address: 6330 North Matthews Drive, Ellettsville, Indiana 47429
Permit Renewal No.: 105-40744-00030
Reviewer: Anh Nguyen

Existing Sterilization Chamber (S1 through S7)	Stack Vent Identification #	Fraction of EO Usage	Uncontrolled VOC/HAP (lbs/yr) (1)	Uncontrolled VOC/HAP (tons/yr) (1)	Control Efficiency (%)	Controlled VOC/HAP (lbs/yr)	Controlled VOC/HAP (tons/yr)
Sterilization Chamber (Vacuum) Vents	RSV01	0.9504	72,000.0	36.0	99.99%	7.20	0.004
Sterilization Chamber Exhaust Vents (Back vents)	SV01	0.0034	260.0	0.1	99.00%	2.60	0.001
Product Transfer	See Notes[2]	0.0021	156.00	0.1	99.00%	1.56	0.001
Aeration (HC1 through HC14)	HV01	0.0441	3,340.0	1.7	99.00%	33.40	0.017
Total	-	1.00	75,756	37.88	-	44.76	0.023

Notes 73.37

(1) The Maximum Uncontrolled Emissions were calculated as follows: Potential Emissions = Fraction of EO Usage x [Maximum Production (pallets/hr) x Average EO/Pallet x 8760 hrs/yr]

(2) Pallet Transfer/Fugutives stack vents HV02, RV02, RV03, RV04 & RV05

The Maximum Production and Average EO/Pallet is confidential information, pursuant to 326 IAC 17.1-4

Potential Emissions for Sterilization Chambers S1 through S7 taken from FESOP Second Renewal No. F105-27381-00030, issued August 24, 2009. 0.990000

VOC and HAP = - ethylene oxide 0.9801

Proposed Revision (Units S8 and S9)	Stack Vent Identification #	Fraction of EO Usage	Uncontrolled VOC/HAP (lbs/yr) (1)	Uncontrolled VOC/HAP (tons/yr (1)	Control Efficiency (%)	Controlled VOC/HAP (lbs/yr)	Controlled VOC/HAP (tons/yr
Sterilization Chamber (Vacuum) Vents	RSV01	0.9500	45,671.0	22.8	99.99%	4.57	0.002
Sterilization Chamber Exhaust Vents (Back vents) (3)	SV02	0.0035	168.0	0.1	99.00%	1.68	0.001
Product Transfer	See Notes[2]	0.0021	101.0	0.1	99.00%	1.01	0.001
Aeration (HC1 through HC14)	HV01	0.0444	2,135.0	1.1	99.00%	21.35	0.011
Total	-	1.00	48,075.00	24.0	-	28.61	0.015

0.9999 **Total of 9 uni** **61.92** **0.038**

Notes

(1) The Maximum Uncon

(2) Pallet Transfer/Fugutives stack vents HV02, RV02, RV03, RV04 & RV05 Controlled Emissions were calculated as follows: Potential Emissions = Fraction of EO Usage x [Maximum Production (pallets/hr) x Average EO/Pallet x 8760 hrs/yr]

The Maximum Production and Average EO/Pallet is confidential information, pursuant to 326 IAC 17.1-4

(3) With this proposed revision, the new sterilization chambers S8 & S9 are not required to control the sterilization chamber exhaust vents (back vents), pursuant to 40 CFR 63, Subpart O (National Emission Standards for Hazardous Air Pollutants for Ethylene Oxide Emissions Standards for Sterilization Facilities). The existing units, S1 through S7, are required to control the back vents pursuant to the source's 8-1-6 BACT for these units.

The size and production rate of these sterilization chambers is approved as confidential information, and was submitted to IDEM, OAQ with application on June 28, 2012.

Potential to Emit after Significant Permit Revision
Sterilization Chambers S1 through S9

	Uncontrolled Emissions	Controlled Emissions
Total (lbs/yr)	123,831.00	73.37
Total (tons/yr)	**61.92**	**0.038**

Appendix A: Emissions Calculations
Source-Wide Summary

Company Name: Cook Incorporated
Address: 6330 North Matthews Drive, Ellettsville, Indiana 47429
Permit Renewal No.: 105-40744-00030
Reviewer: Anh Nguyen

Uncontrolled Potential To Emit of the Entire Source (tons/year)

Process / Emission Unit	PM	PM10	PM2.5	SO_2	NOx	VOC	CO	Total HAPs	Single HAP	
Sterilization (S1 to S7)	-	-	-	-	-	37.88	-	37.88	37.88	Ethylene Oxide
Sterilization (S8 to S9)	-	-	-	-	-	24.04	-	24.04	24.04	
Surface Coating	-	-	-	-	-	2.05	-	0.01	0.01	Methaol
Miscellaneous Cleaning with IPA	-	-	-	-	-	9.47	-	0.00	0.00	
Catheter Impregnation	-	-	-	-	-	4.04	-	0.75	0.75	Methanol
Paclitaxel Treatment	-	-	-	-	-	4.77	-	0.00	0.00	
Boilers	0.17	0.67	0.67	0.05	8.79	0.48	7.39	0.17	0.16	Hexane
Emergency Diesel Generators	0.84	0.48	0.48	4.83	28.63	0.84	6.56	0.01	0.01	Benzene
Insignificant Activities*	0.14	0.14	0.14	-	-	0.32	-	0.17	0.09	TCE
Total PTE of Entire Source	**1.14**	**1.29**	**1.29**	**4.88**	**37.43**	**83.88**	**13.95**	**63.03**	**61.92**	Ethylene Oxide

This Significant Permit Revision includes the addtion of two (2) new sterilization chambers, with PTE of 24.04 tons per year of VOC and Ethylene Oxide (ETO)
*Insignificant Activity Emissions represent emissions from various assembly operations including gluing, package prep and printing.

Limited Potential To Emit of the Entire Source (tons/year)

Process / Emission Unit	PM	PM10	PM2.5	SO_2	NOx	VOC	CO	Total HAPs	Single HAP	
Sterilization (S1 to S7)	-	-	-	-	-	9.42	-	9.42	9.42	ethylene oxide
Sterilization (S8 to S9)	-	-	-	-	-		-			
Surface Coating	-	-	-	-	-	2.05	-	0.01	0.01	Methanol
Miscellaneous Cleaning with IPA	-	-	-	-	-	9.47	-	0.00	0.00	
Catheter Impregnation	-	-	-	-	-	4.04	-	0.75	0.75	Methanol
Paclitaxel Treatment	-	-	-	-	-	4.77	-	0.00	0.00	
Boilers	0.17	0.67	0.67	0.05	8.79	0.48	7.39	0.17	0.16	Hexane
Emergency Diesel Generators	0.84	0.48	0.48	4.83	28.63	0.84	6.56	0.01	0.01	Benzene
Insignificant Activities	0.14	0.14	0.14	-	-	0.32	-	0.17	0.09	TCE
Total PTE of Entire Source	**1.14**	**1.29**	**1.29**	**4.88**	**37.43**	**31.38**	**13.95**	**10.53**	**9.42**	Ethylene Oxide

Controlled Potential To Emit of the Entire Source (tons/year)

Process / Emission Unit	PM	PM10	PM2.5	SO_2	NOx	VOC	CO	Total HAPs	Single HAP	
Sterilization (S1 to S7)	-	-	-	-	-	0.023	-	0.023	0.023	Ethylene Oxide
Sterilization (S8 to S9)	-	-	-	-	-	0.015	-	0.015	0.015	
Surface Coating	-	-	-	-	-	2.05	-	0.01	0.01	Methanol
Miscellaneous Cleaning with IPA	-	-	-	-	-	9.47	-			
Catheter Impregnation	-	-	-	-	-	4.04	-	0.75	0.75	Methanol
Paclitaxel Treatment	-	-	-	-	-	4.77	-			
Boilers	0.17	0.67	0.67	0.05	8.79	0.48	7.39	0.17	0.16	Hexane
Emergency Diesel Generators	0.84	0.48	0.48	4.83	28.63	0.84	6.56	0.01	0.01	Benzene
Insignificant Activities	0.14	0.14	0.14	-	-	0.32	-	0.17	0.09	TCE
Total PTE of Entire Source	**1.14**	**1.29**	**1.29**	**4.88**	**37.43**	**22.00**	**13.95**	**1.15**	**0.75**	Methanol

ATTACHMENT C

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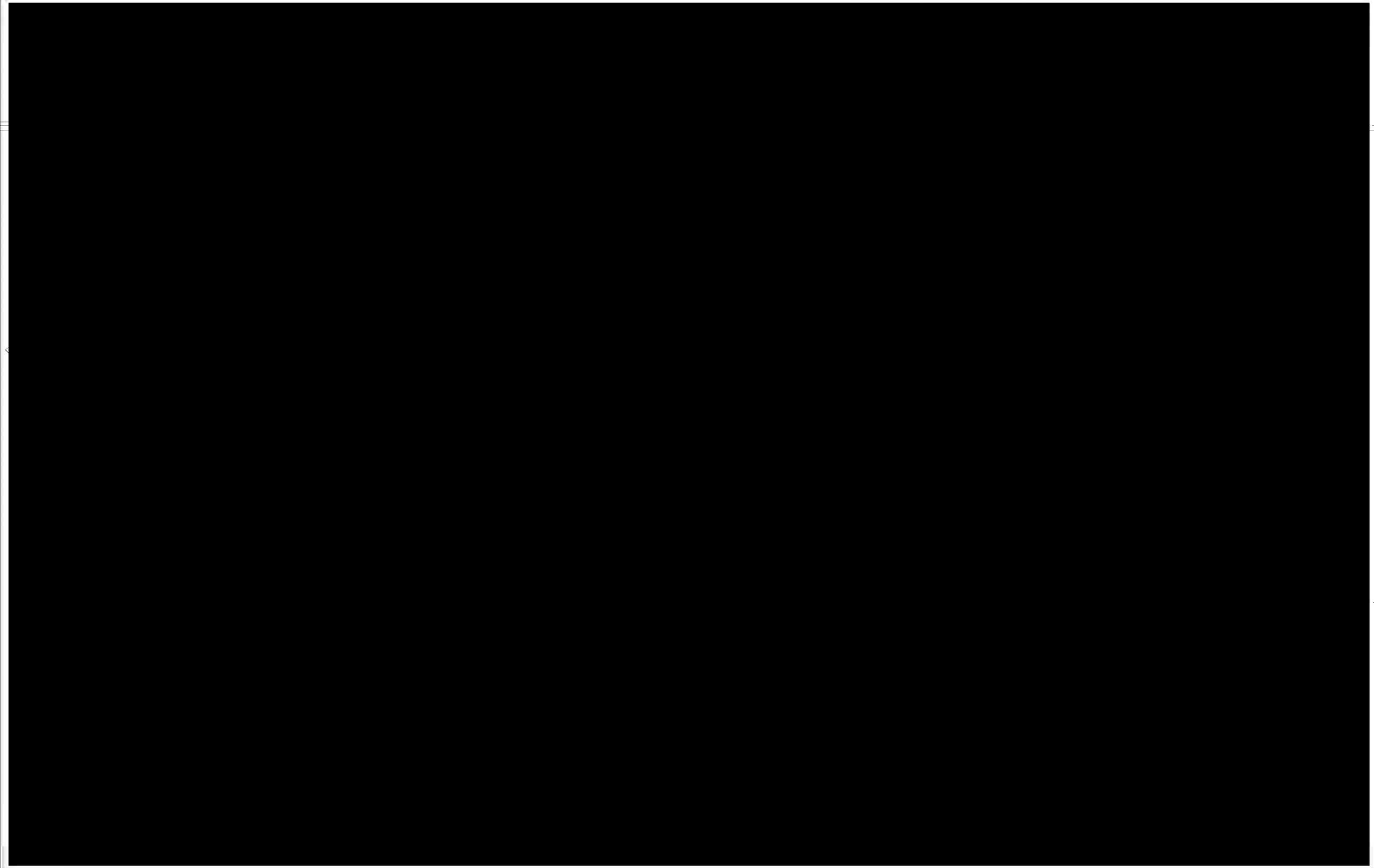
ATTACHMENT D

[redacted]



[redacted]

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ATTACHMENT E

Safe Cell II Dry Bed Units

www.advairtech.com
ADVANCED AIR TECHNOLOGIES, INC.
300 Earl Sleeseman Drive
Corunna, MI 48817
(Michigan USA)
PH: 989-743-5544
FX: 989-743-5624
TF: 800-295-6583
ISO 9001 : 2008 Certified

SAFE-CELL II to Include DR50 & DR490

Dry Reactant - Principle of Operation

Principle of Operation

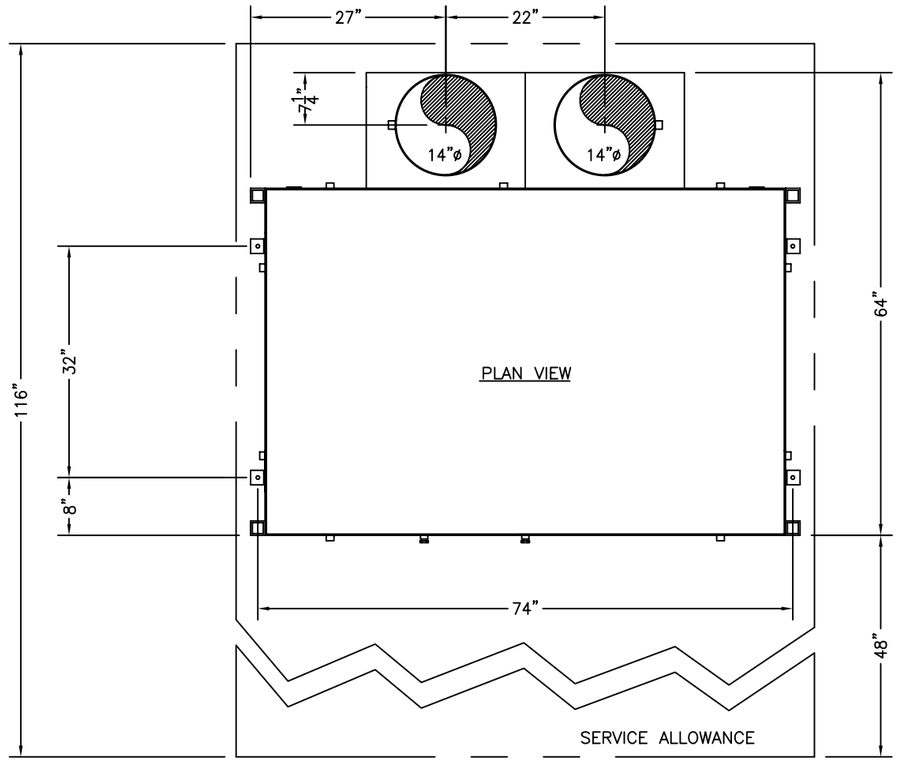
The Safe-Cell II utilizes a proprietary technology for chemically combining Ethylene Oxide to the surfaces of a dry reactant media. This process, known as **chemisorption,** is extremely effective between Ethylene Oxide and the Safe-Cell II media (sulfonated copolymer of styrene and divinylbenzene in the hydrogen form). The Safe-Cell II consists of a bed of the tiny resin beads through which air containing Ethylene Oxide is made to flow. The Ethylene Oxide diffuses out of the air to the surface of the reactant, where it becomes rapidly and permanently chemically bonded, forming a new surface polymer. The clean air then exits the unit.

The reactant media has capacity to react with approximately 33% of its weight in Ethylene Oxide, after which the media must be changed out. Because of the irreversibility of the surface polymerization reaction, the media is not regenerable by any known common means such as desorption or soaking in acid or base.

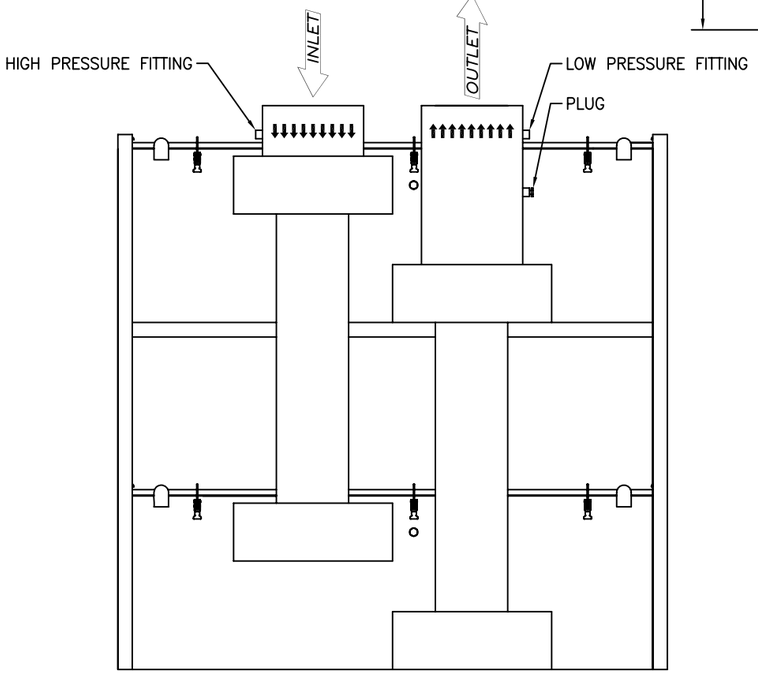
Reactant Change-Out

The spent media must be removed prior to the point of saturation and replaced with fresh media. Depending on local regulation, the spent reactant may be sent to a municipal landfill, as the EPA does not consider the spent media a hazardous waste. The listing of Ethylene Oxide in 40 CFR 261.33 (No. U115) as a hazardous waste does not apply to spent Safe-Cell reactant. This is due to the fact that the reactant is not purchased as a commercial product containing Ethylene Oxide, then discarded with all of the Ethylene Oxide unused, or with only some of it used where it's the sole active ingredient. The spent reactant, furthermore, does not exhibit any hazardous characteristic as detailed in 40 CFR 261.21-261.24, that is, ignitability, corrosiveness, reactivity, and positive TCLP results.

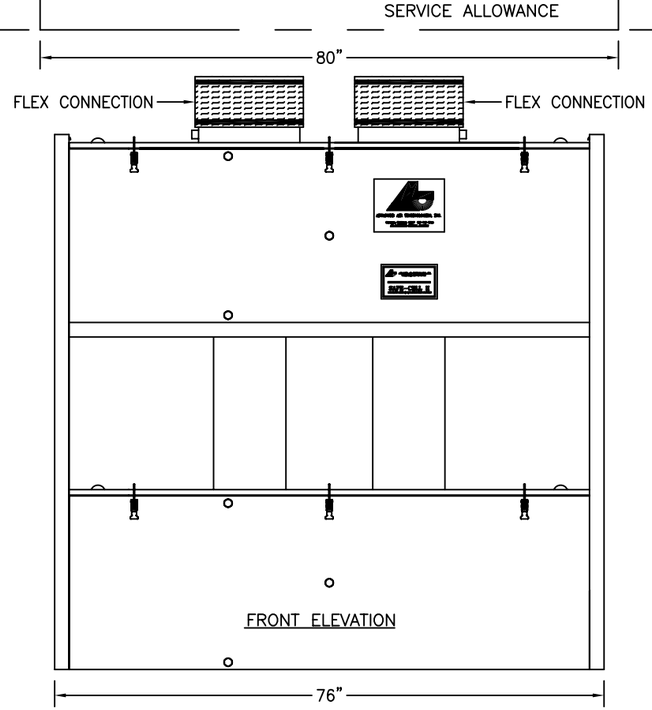
Submitted:
Randal Nicolli, P.E.
AAT Engineering Manager
October 23, 2008



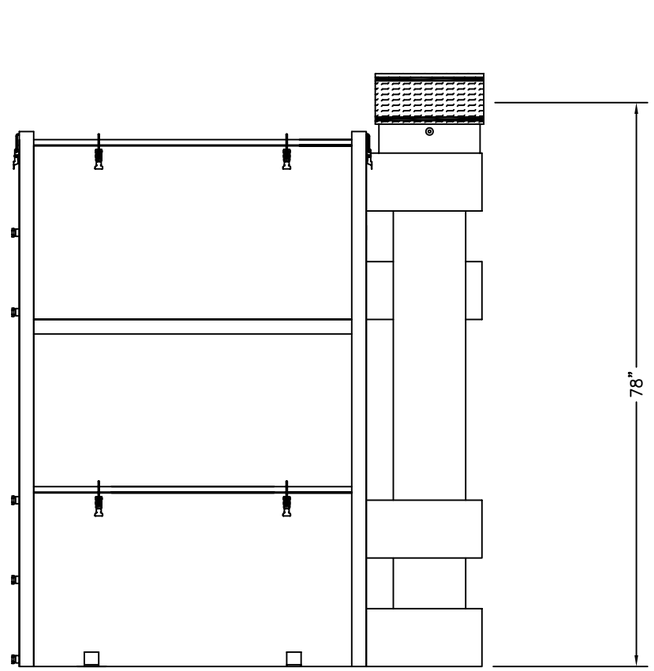
2000 CFM
WEIGHT: 2,200 LBS.



BACK ELEVATION



FRONT ELEVATION



RIGHT SIDE

ADVANCED AIR TECHNOLOGIES, INC.
300 Earl Sleeseman Drive
Corunna, Michigan 48817
ph. 989.743.5544 fax 989.743.5624
AIR POLLUTION CONTROL SYSTEMS

FILE NAME: DR490 Customer Assembly		REV.	DATE:	
JOB NUMBER:	DRAWN BY: FF	REV.	DATE:	
DATE: 03/22/06	P.O. NUMBER:	REV.	DATE:	
SCALE: N/A	APPROVED BY:	REV.	DATE:	

PROJECT TITLE:
DR-490

DRAWING TITLE:
DR-490 A CUSTOMER ASSEMBLY

DWG. NUMBER: 01 REV.

The New York Blower Company
Fan-to-Size
Fan Selection Detail

Fan Design

Product:	Series 20 General Industrial
Type:	Radial
Size:	29
Fan Class:	N/A
Wheel Type:	Radial (shrouded high efficiency w/canted blade: AH/DH) - AH
Wheel Material:	Aluminum
Wheel Weight:	43.0 lb
Wheel WR²:	34.8 lb-ft2
Percent Width:	100%
Percent Diameter:	100.0%
Oulet Area:	1.59 sq. ft.
Options:	None

Axial thrust load is 105.2 lbf.

Calculation Mode: Find Speed

Drive Type:	Belt
Arrangement:	10
Outlet Velocity:	3774 ft/min
Static Efficiency:	70.23%
Total Efficiency:	74.5%
Operating Temp:	120° F
Maximum Temp:	120° F
Maximum Speed: (1)	1995 RPM
Velocity Pressure:	0.793 in wg
Fan Static Pressure:	13 in wg
Fan Total Pressure:	13.8 in wg
Altitude:	696 ft

Conditions

	Flow	Pressure	Power	Speed	Speed Limit (2)	Density	Altitude	Inlet Temp.
	ACFM	in wg (FSP)	bhp	rpm	rpm	lb/ft3	ft	f
Operating	6000	13	17.5	1769	1995	0.0669	696	120
Cold	6000	14.2	19.2	1769	1995	0.0732	696	70
Standard	6000	14.6	19.6	1769	1995	0.0750	0	70

(1) Speed Limit at Maximum Temperature (2) Speed Limit at indicated Inlet Temperature

My Sales Representative

Industrial Equipment of Detroit, Inc.
6020 W Maple Road Suite 504 West Bloomfield, MI 48322, USA
(P) 248-851-6420, (F) 248-851-6694
sales@indust-equip.com

The New York Blower Company certifies that the Series 20 General Industrial fan is licensed to bear the AMCA Air Performance Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and comply with the requirements of the AMCA Certified Ratings program. AMCA Licensed for Air Performance without Appurtenances (Accessories). Power HP (bhp) excludes drives. Performance certified is for installation type: D - ducted inlet, ducted outlet.

Sound Power Level Ratings

Sound power and sound pressure levels are shown in decibels. (Power levels reference 10-12 watts and pressure levels reference 2x10-7 microbar.) Sound power ratings are calculated per AMCA Standard 301. Ratings do not include the effects of duct end correction. Sound levels do not include motors or drives. Pressure levels are estimated. A-weighing is per ANSI S.1.42-2001 (R2011).

Fan Sound

Center Freq (Hz)	63	125	250	500	1000	2000	4000	8000	Overall
Octave	1	2	3	4	5	6	7	8	
Inlet Total Power, dB	89	96	97	95	95	93	90	86	**103**
A-Weighting	-26.2	-16.1	-8.6	-3.2	0	1.2	1	-1.1	
Convert To Pressure	-11.5	-11.5	-11.5	-11.5	-11.5	-11.5	-11.5	-11.5	
Inlet Total Pressure, dBA	51	68	77	80	84	83	80	73	**88**
Outlet Total Power, dB	89	96	97	95	95	93	90	86	**103**
A-Weighting	-26.2	-16.1	-8.6	-3.2	0	1.2	1	-1.1	
Convert To Pressure	-11.5	-11.5	-11.5	-11.5	-11.5	-11.5	-11.5	-11.5	
Outlet Total Pressure, dBA	51	68	77	80	84	83	80	73	**88**
Fan Total Power, dB	92	99	100	98	98	96	93	89	**106**
Housing Radiated Noise	-5	-8	-12	-14	-12	-12	-13	-14	
A-Weighting	-26.2	-16.1	-8.6	-3.2	0	1.2	1	-1.1	
Convert To Pressure	-11.5	-11.5	-11.5	-11.5	-11.5	-11.5	-11.5	-11.5	
Fan Total Pressure, dBA	49	63	68	69	75	74	70	62	**79**

Directivity/Reflection is a hemispherical radiation (Q = 2); Distance is 5 ft.
At 5 ft, the estimated sound pressure level:

1. outside the fan due to an open inlet OR outlet is 88 dBA.
2. housing radiated noise when inlet and outlet are ducted away from listening point is 79 dBA.

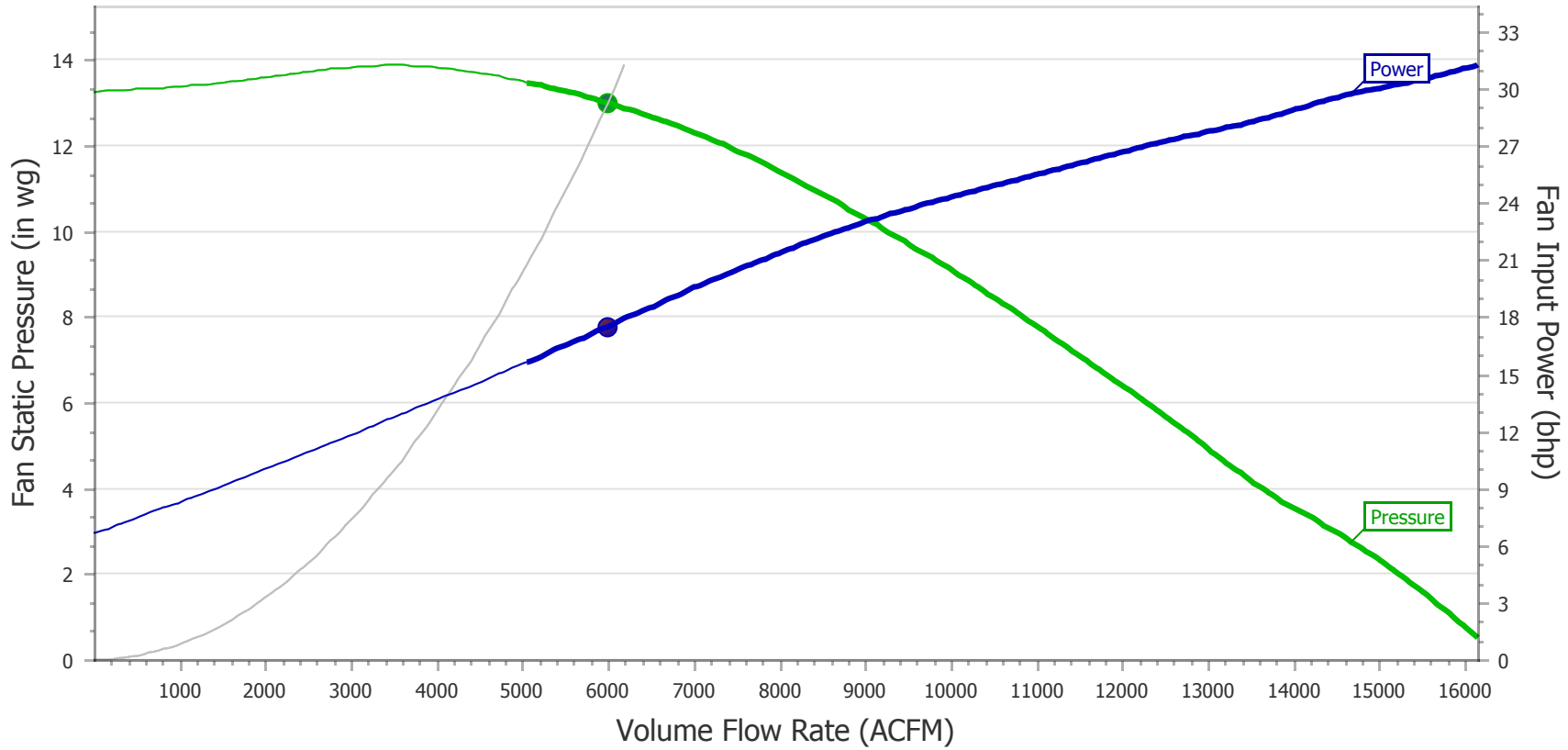
The sound power and pressure levels displayed here are estimated values based on tests and ratings conducted in accordance with AMCA standards 300 and 301. AMCA does not certify any of these ratings. See the Policy on Sound for more details.

The New York Blower Company
Fan-to-Size
Fan Selection Detail

Product: Series 20 General Industrial
Material: Aluminum
Fan Size: 29
Arrangement: 10
Wheel Type: Radial (shrouded high efficiency w/canted blade: AH/DH) - AH
Options: None

Volume Flow Rate: 6000 ACFM
Fan Static Pressure: 13 in wg
Speed: 1769 rpm
Power: 17.5 bhp

Inlet Temperature: 120 °f
Altitude: 696 ft
Density: 0.0669 lb/ft3
Outlet Velocity: 3774 ft/min



AMCA Licensed for Air Performance without Appurtenances (Accessories). Power HP (bhp) excludes drives. Performance certified is for installation type: D - ducted inlet, ducted outlet.

Cook114_Non-CBI_00485